ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

PAPER

Vol. XCV, No. 12 — Thursday, September 22, 1932

Technical Association Meets at Holyoke, Mass.

Fall Convention Is Attended by More Than 300 Technical Men From the Various Representative Paper Making Centers of the United States and Canada—Pulp and Alloy Specifications Are Discussed and Paper Making Variables Feature Program — Helen U. Kiely Is General Chairman of the Successful Convention

[FROM OUR SPECIAL REPRESENTATIVE]

HOLYOKE, Mass., September 19, 1932.—After a period of fifteen years the Technical Association of the Pulp and Paper Industry again met at Holyoke, on September 14 to 16, for its fall convention. More than 300 members and guests registered and a large number in addition to these, attended the various functions of the meeting, which were prepared by the local committee under the general chairmanship of Miss Helen U. Kiely, chief chemist of the American Writing Paper Company.

Local Organization

The outstanding success of the meeting was largely due to the untiring efforts of the local committees under Miss Kiely's chairmanship. The details of the meeting were taken care of by the following committees: Administration, W. O. Johnson, chairman, L. C. Reynolds, W. L. Foote, C. Hemond; Program, E. O. Reed, chairman, J. C. Sanburn, L. M. Yoerg, William Whiting, F. C. Ladd; Arrangements, E. C. Tucker, chairman, W. L. Nixon, C. J. Yarber, R. L. Bosworth, Robert True, G. H. Knox, Granville Chase, Ralph Waite, Fred Glanville, Andrew Jackson. Ladies: F. A. Curtis, chairman; Publicity, R. W. Pattison, chairman, Ralph Snell, C. A. Perry, Dwight Bartlett, C. H. Smith. Hostesses: Mrs. F. C. Clark, Mrs. F. A. Curtis, Mrs. A. F. Cosby, Mrs. L. W. Crouse, Mrs. G. R. Wholean, Mrs. E. C. Tucker, Mrs. L. M. Yoerg.

All the business meetings were held in the ballroom of the Nonotuck Hotel. Allen Abrams of the Marathon Paper Mills Company, president of TAPPI, presided as chairman of all sessions.

Frederic C. Clark of Skinner & Sherman Inc. was in charge of the symposium on paper making variables.

John L. Parsons of the Hammermill Paper Company was in charge of the symposium on pulp classification and specifications.

Papers Presented

From the standpoint of quality it is doubtful if any fall meeting program of the association was ever before so replete with papers of greater vital interest to the paper industry. In most cases the subjects were selected to meet the immediate needs of the paper manufacturers. There were few, if any, papers of a purely advertising nature.

Paper making variables was the subject for Thursday's symposium and was under the direction of Frederic C. Clark, general chairman of the TAPPI operating division. Beginning with a paper on the fundamental relationship between sheet properties and fiber properties in paper by R. H. Doughty of the Forest Products Laboratory, Madison, Wis., the symposium continued with papers on drying and handling of white water. Mr. Doughty's investigations have been carried on as the work on a fellowship financed by the Technical Association of the Pulp and Paper Industry and the American Paper and Pulp Association. In this, his fourth major presentation, he discussed the use of structural concepts in pulp evaluation and paper design.

Roger B. Brown of Trenton, N. J., presented an interesting critical analysis dealing with one phase of Mr. Doughty's work, namely the relationship between natural long and short fibers. Mr. Brown pointed out that these two types of fibers differed chemically and that the general statement that short fibers produce slower pulp than long fibers is not necessarily true. This was evidenced by the fact that when Mr. Brown mechanically cut fibers by cutting them the resultant pulp did not appear to be appreciably slower than pulp from the original long fibers.

Drying Pulp and Paper

D. W. McCready of the chemical engineering department faculty of the University of Michigan presented the first of a series of papers dealing with the mechanism of drying. In this paper he featured air drying and explained that shrinkage in drying may be divided into two classes: 1. Shrinkage due to the collapse of the structure of the solid as the free water is removed. This may be equal to the total volume of free water remaining or less. 2. It may be due to the shrinking of the individual particles of the solid as they lose their bound water content. This case is limited to materials which change in dimension with the amount of hygroscopic moisture held.

White Water Utilization

The first installation of a closed white water system for a fine paper mill was described in a paper by Samuel Hellberg and Andrew Jackson of the American Writing Paper

Company. C. M. Baker of the American Paper and Pulp Association discussed the paper and outlined the ways of keeping slime out of a system.

L. M. Booth of Elizabeth, N. J., in a presented paper stated that a survey of a mill's water properties will usually reveal that the quality of the water at the point of sheet formation varies for each of the sheets made, regardless of the care exercised in the beater room in the endeavor to maintain uniformity. There is undoubtedly an optimum water condition for the formation of each sheet and this should be maintained uniform in quality.

At the end of the program an interesting moving picture "From Mine to Consumer," was shown by representatives of the American Brass Company of Waterbury, Conn.

Pulp Specifications

Thursday's program was of particular interest since it was devoted to the initial effort on the part of the association to classify chemical wood pulps in terms of their respective use requirements. It is on such a foundation the association expects ultimately to draw up purchasing specifications. A symposium on this general subject was conducted under the chairmanship of John L. Parsons of the Hammermill Paper Company, general chairman of the TAPPI raw materials division.

C. C. Heritage read a paper on the problem of classifying chemical pulps. In substance he pointed out that pulp may be purchased by trade name, by description of the raw materials used in its preparation, such as spruce, by a description of the process used in its manufacture, by a consideration of the conversion process to which it will be subjected and by consideration of the use to which the converted material will be put. Mr. Heritage stated that probably the most important physical property of a pulp is its color and to a lesser degree its bleachability, developed strength, degree of freeness, dirt, etc.

He felt that a classification based on the time required to beat to a certain value or the time required for refining was inadequate. The important consideration is a mill's capacity to refine pulp and the laboratory tests should be made to correspond with the ability of the mill's equipment to accomplish the desired result, thus if the pulp can only be in the mill beaters two hours, pulps should be specified that can be refined adequately in such a period of time.

Helen U. Kiely of the American Writing Paper Company outlined the basis of specifications used by this company, wherein fold, tear and burst are considered to be reliable criteria. J. J. McDonald discussed the present status of the industry in its ability to specify and indicated that the special needs of the pulp to produce a few definite properties in the resulting paper are of paramount importance.

Hellmuth Schwalbe outlined the progress made in this subject abroad and recommended international cooperation with the European Strength Testing Committee. Ernest Erickson of the Lagerloef Trading Company recommended that purchases continue to be made on approved samples.

Johannes Westergaard of Atterbury Brothers Inc., presented the pulp sales company viewpoint and speaking from personal viewpoint only, indicated that there is still a need for standard testing methods, uniformly used throughout the industry. The trend in buying pulp is toward specifications based on test standards and the Tech-

GROUP PICTURE TAKEN AT THE FALL CONVENTION OF THE TECHNICAL ASSOCIATION OF THE

nical Association should logically assume the responsibility of working up such standards, however, at all times these standards should be kept reasonable and provide fair tolerances.

George Richter of the Brown Company suggested that consideration should be given to the relative stability of such properties as color, strength, fold, etc. since these change when pulp is kept in storage for long periods.

Donald E. Cable, chairman of the TAPPI Pulp Testing Committee, expressed the desirability of using the same specific definitions in indicating both paper and pulp testing methods.

P. K. Baird and R. H. Doughty of the Forest Products Laboratory presented a suggested system for the characterization of pulps and stuffs based on their use requirements. He stated that use requirements knowledge is still rather meager and empirical in nature. It is immediately necessary to organize, select or develop test methods to measure the selected properties characterizing the materials. These will later be related to use requirements and maximum and minimum values of pulp properties for a definite use can be adopted.

Cotton vs. Wood Cellulose

Harry F. Lewis of the Institute of Paper Chemistry, Appleton, Wisconsin, reviewed the work being carried on at the Institute in its study of the relative stability of cotton and wood cellulose. Cuprammonium viscosity measurements of the degradation of a large number of pulp samples revealed the fact that the rate of degradation of refined wood pulp is greater than that of cotton.

Alloy Specifications

The Friday morning program was attended by a large number of metallurgists in addition to paper makers for the purpose of discussing the proposed TAPPI specification for chromium-nickel-iron castings for sulphite pulping equipment. During the past few years a considerable tonnage of so-called 18-8 alloys have been used in the paper industry especially for handling corrosive sulphite liquors.

D. S. Davis, consulting mathematician outlined the time saving advantages of using alignment and line coordinate charts in the industry. An alignment chart or nomograph is an arrangement of three parallel scales which can be cut by a single straight line in values satisfying a known equation while a line coordinate chart has two parallel lines and a third irregular line cut by a straight line. The latter is used when the exact nature of the relationship between the variables in unknown.

Beating

W. Boyd Campbell of the Forest Products Laboratories of Canada presented a physical theory of the beating process in which he stated that the bonding of fibers in a sheet is due to the beating causing a greater facility of contact between fiber and fiber which, by being drawn into contact by surface tension effects, unite by their mutual molecular attraction or crystallizing forces.

Arthur B. Green, consulting engineer, read a paper on the subject of beating by impact.

Bleaching

Direct chlorination as an aid in the bleaching of sulphate pulp was the subject presented by John D. Rue and James Sconce of the Hooker Electrochemical Company. The process described consists essentially of two stages, the first a chlorination after which lime is added and the re-

THE PULP AND PAPER INDUSTRY, HOLYOKE, MASS., SEPTEMBER 14-16, 1932

action allowed to proceed in an alkaline medium until the chlorine is exhausted.

Harry F. Lewis and Stephen Kukolich of the Institute of Paper Chemistry described the colorimetric determination of pH of the solutions containing chlorine or hypochlorites. The stability of indicators during such a determination was also discussed.

Papers Read by Title

A number of papers were read by title only and included the following: Roll Coaters vs. Brush Coaters, by F. W. Egan of the J. O. Ross Engineering Corporation; A Study of Evaluation of Kraft Bleach Processes, by F. J. Cirves o the Filer Fibre Company; Temperature Curves and the Sulphite Cook; and Practical Sulphite Cooking by Ragnar Monnberg of the Abitibi Power and Paper Company; Assembly and Calibration of the Glass Electrode by E. H. Voigtman and B. W. Rowland of the Institute of Paper Chemistry; A New Departure in Kraft Smelter Design and Construction, by F. W. Hooper; Alum Feed for Paper Mill Waters by R. T. Barnes; Effect of Inorganic Acids on Physical Properties of Waterleaf Rag Bond Paper, by F. P. Veitch, Bureau of Chemistry and Soils, Washington, D. C.; Cuprammonium Viscosity Test for Pulp Quality Estimation by M. D. Reuben, York Haven Paper Company; and Developments in Direct Heated Digester Operation by M. B. Hall, Foxboro Company.

Mill Visits

There being more mills in the Holyoke area than in any other paper making center it was necessary to have the delegates select those mills to visit that would prove to be most interesting. Consequently certain mills were grouped according to location and products made.

On Wednesday there were three trips from which to select. Trip 1 consisted of Crocker-McElwain Company, American Writing Paper Company, (Platner & Porter Division), and the Laboratory, located in the Wauregan Division. Trip 2 included the Carew Manufacturing Company, American Tissue Mills, and the Gill Division of the American Writing Paper Company. Trip 3 included the Holyoke Water Power Company, B. F. Perkins & Son Company and the National Blank Book Company.

On Thursday there were five trips planned. Trip 1 included Strathmore Paper Company Woronoco Division, Old Colony Envelope Company, Westfield. Trip 2 included C. H. Dexter & Sons, Windsor Locks, Conn.; Southworth Company, West Springfield. Trip 3 consisted of the Mt. Tom Sulphite Company; Norwood Engineering Company, Florence, Mass. Trip 4, Esleeck Paper Company, Turners Falls; Millers Falls Paper Company. Trip 5 to E. D. Jones & Son, Pittsfield, Mass.

Recreation and Ladies Programs

In addition to the business program of the meeting there was a recreational program consisting of luncheons, dances, golf, smoker and tours.

On Wednesday afternoon a large number of golf players competed at the Orchards for the beautiful trophy presented by Horace A. Moses, president of the Strathmore Paper Company. This was won by James A. Reilly of the American Writing Paper Company, who turned in a low net of 72.

A dinner-dance on the Indian Roof of the Nonotuck Hotel constituted the evening program. The large number of women who attended and the excellent program of entertainment made this a very enjoyable occasion. An opportunity was provided during the program in which President Abrams presented Miss Kiely with a bouquet of roses as an expression of appreciation in behalf of the TAPPI executive committee. The extent of applause reflected the high esteem in which Miss Kiely is regarded in the association.

The Thursday luncheon was held at the Mt. Tom Golf Club, following which a photograph was taken of the delegates present. In the afternoon the golf players competed for the S. L. Willson trophy, presented by the president of the American Writing Paper Company. This was won by M. W. Davis, manager of the Wood Industries Supply Company of Montreal, P. Q.

On Thursday evening members gathered around the square ring and enjoyed watching an exhibition of high class and enthusiastic wrestling and boxing by local professionals. In addition to settling the question of physical supremacy the contestants had the additional responsibility of settling such questions as "Is paper making an art or a science?" (It is still an art). "Is 65 per cent relative humidity better than 50 per cent relative humidity," (50 per cent was decided upon). "Is Alpha pulp as good as rags?" (The decision went to rags). "Is the chemist or the engineer the most valuable to the paper industry?" (The chemist by a great margin). "Is domestic pulp better than foreign pulp?" (no decision). "Is Holyoke or Kalamazoo the 'paper city'?" (no decision but by vote of all present Holyoke was given a large majority).

George Williamson, former president of TAPPI and now treasurer of the Strathmore Paper Company, was toastmaster and among other things read extracts from the report of the last national TAPPI meeting in Holyoke in 1917. Many who attended the former were again present this year. Thomas J. Keenan who was then secretary, was introduced and received a hearty ovation. It was further pointed out that at least sixty five per cent of the members of the association in 1917 now hold major executive positions in the paper industry.

The final social feature was a New England clambake with all the fixings, at Coutures Grove, Hampden Ponds, Mass. This was a delightful affair in which a large number of comic athletic events were participated in by members. There was an exhibition of fancy diving by local swimmers and then the serious job of eating steamed clams, lobster, corn, sweet potatoes, etc. began and until long into the night, dancing in the rustic open air pavilion continued.

Under the capable direction of F. A. Curtis and his ladies committee a pleasant program was enjoyed by the visiting women. Luncheons, bridges, teas, dances, sightseeing trips, movies, etc. were conspicuous on the program, many of which events were enjoyed with the men. Of special interest was an old fashioned New England breakfast and a dinner at the Northampton Tavern, which houses many interesting antiques, and a sightseeing trip around the campuses of Smith, Mt. Holyoke, Amherst and Massachusetts State Colleges.

TAPPI Council

Prior to the meeting the TAPPI executive committee met at the Lord Jeffery Inn at Amherst and discussed several matters dealing with the association plan of organization. In the evening the association division, section and committee chairmen met with the executive committee to discuss progress reports and plans for future work. It is expected that this general conference will be the foundation of a splendid annual meeting program in February in New York.

Those Who Attended

Those who attended the fall meeting included the following:

F. W. Adams, Massachusetts Institute Technology,

(Continued on page 41)

Price Bros. & Co. Cut News Print Quotations

Announce Revised Price to Company's Customers In New York of $47.50 Per Ton, Compared With $53 Formerly, Resulting In a Decrease of $5.50 Per Ton—Action One More Indication of Unsatisfactory Condition of News Print Industry

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., September 19, 1932.—Another of the recurrent crises in the news print industry has been precipitated by the announcement of Price Bros. & Co., Ltd., that a reduction in the price of news print is now in effect, making the price to the company's customers in the United States $47.50 per ton, f. o. b. New York, as compared with the former price of $53 per ton, equivalent to $5.50 per ton less.

It is generally understood that the Canadian Newsprint Institute, as a factor in maintaining a balance in price and production, ceased to exist in 1931, and since that time each producer has been free to establish its own price levels with its particular customers. Since that time rumors have been frequent of cuts by various units, but Price Bros.' announcement is the first official confirmation of such a development.

Independent Policy

The policy of Price Bros. & Co. is understood to be one of independent action. Agreements with its customers are said to contain a proviso that when any lower price than stipulated in the contracts is conceded by other news print manufacturers, the company will meet the price. On behalf of the company it is now explained that they are bringing their contract price down to what they believe to be the present real market price.

Price Bros. have a mill capacity of 950 tons of news print per day.

Speaking in Montreal a day or two ago an executive of the International Paper Company is reported in the *Montreal Gazette* as saying that no change in price has been decided upon by his company, while Ernest Rossiter, president of the St. Lawrence Corporation, another of the dominant units in the industry, also indicated that thus far no change in price has been decided upon by his organization.

In the ordinary course of events, the International Paper Company would announce to its customers some time in November the scale of prices to prevail for 1933. In the past it has been customary for the International Paper Company to make first announcement of a price schedule, with this scale followed by other units in the industry.

The price reduction is only one more indication of the chaotic condition of the news print industry. It was only recently that Price Bros. & Co., now in the throes of reorganization, announced their inability to meet the payment due on August 7 of interest on their bonds.

Another indication of the unsatisfactory return afforded by present news print prices was furnished by the report of the second quarter earnings just made public by the International Power and Paper Company, which showe a net loss of $1,856,236 against the net income of $1,013,435 for the same period last year.

Other indications are the receivership effected in the case of the Abitibi Power and Paper Company and the default of bond interest by the Lake St. John Power and Paper Company.

Scandinavian Competition

There has been some inclination to blame the break in prices on Scandinavian competition in the United States market, made more keen by the fact that the Scandinavian countries have followed Britain's example in going off the gold standard.

This may have been a contributing factor, but the general opinion is that at best Scandinavian competition can only be of a strictly limited character. The main cause is held to be the development of cut-throat competition for existing business, a lead in which has been given by smaller independent units who by cutting prices have been enabled to keep output near capacity, while the larger mills have been working at from 40 per cent to 50 per cent of capacity.

Summing up the situation as it appears from the investors' point of view, the *Financial Times* of Montreal says:

The opinion is expressed in circles close to the news print industry that this new development is an inevitable result of the delay in the consummation of the merger, or mergers, on which the banking committee, headed by E. W. Beatty, has been working for some considerable time. Absolute co-operation, it is pointed out, is a prime necessity before any attempt can be made to stabilize, to some extent at least, the conditions which bid fair to result in disintegration of an industry in which Canadian and United States investors have sunk billions of dollars.

As long, however, as the various operators continue their attempts to work out their own destiny, the ultimate fate of the whole industry, it is believed, hangs in the balance; hence the only possible salvation seen is in the formation of one big organization, or else two distinct consolidations which will be prepared to work in close harmony with regard to production, tonnage distribution, and selling price.

There is a well-defined feeling that the basis for such a merger or mergers has been fully worked out, and that individual problems—such as the Ontario Power Service Connection of Abitibi—only remain to be cleared up for the long-deferred consolidation in the industry to become an actual reality.

Westminster Paper Co.'s Earnings

From Vancouver it is reported that for the fiscal year ended July 31, 1932, lower net profits but an improved capital position are announced by the Westminster Paper Company, Ltd. Net amounted to $19,970 as against $21,336 in 1931, and surplus account was at a slightly higher level. At the recent annual meetings a 4 per cent cash dividend was declared on the 47,789 outstanding shares of common stock, involving a distribution of $19,116. This dividend absorbs all but $3,788 of the $22,904 surplus shown in the balance sheet as at July 31, 1932.

Gross sales for the year amounted to $485,408. After deduction of $17,993 in discounts and allowances and $331,150 in costs, gross profit for the year was shown at $136,265. Interest on investments, amounting to $6,216, brought gross income to $142,481.

J. J. Herb, president, in a statement to shareholders, said credit was due to the sales staff in keeping the plant operating at capacity when the demand for paper products generally showed a marked decrease.

"Prospects for the present year do not appear to be un-

favorable," added Mr. Herb. "A careful analysis of our market tends to point toward a general improvement. If this continues, there is every reason to believe that we can show an increased profit for the period just begun."

Price Bros.'s Protective Committees

Further movements are now said to be under way for the protection of security holders of Price Bros. & Co. In Quebec the possibility of forming an independent committee for the bond holders is being discussed and in Montreal preferred shareholders are reported to be forming a committee to take care of their interests. An unconfirmed rumor is that bondholders are being sounded out regarding a proposal to pay interest on condition that the sinking fund is waived for a period of five years and that a clause be dropped which calls for a minimum net working capital.

Fraser Companies' Reorganization

During the past week a meeting of the Fraser Companies' first mortgage bond holders was held in Montreal, and at this meeting the amended reorganization plan was adopted. This plan will now become effective as far as the first mortgage bond holders are concerned.

All interests have now approved the plan, excepting 6½ per cent debenture-holders, the meeting of whom to pass on the plan was adjourned for 21 days until October 3rd, because a quorum was lacking.

By the amended plan of reorganization, each holder of capital stock will get one new share for each twenty held.

Additional bonds can only be issued for corporate purposes if net earnings are at least twice the amount of bond interest.

With respect to issuing of further capital stock than that required to make the reorganization plan effective, voting trustees shall have a vote thereon.

Sinking fund provisions are to be waived for five years and interest payments and provision for satisfaction of deferred interests are to be suspended.

It is also proposed to create $2,000,000 prior lien bonds of the Fraser Companies.

To Start Reforestation Tour

SARATOGA SPRINGS, N. Y., September 17, 1932.—It was announced this week by the State Conservation Department that the ninth annual reforestation tour will start next week from the nursery here where considerable time will be spent in inspecting numerous growths of timber planted by the state. The tour is scheduled to start September 23 and many prominent leaders in reforestation work plan to attend. It is understood that the purpose of these inspection trips is to keep the public informed of methods used by the state in reforesting not only its own forest preserve but also the new areas recently acquired under the reforestation amendment.

Reports show that during this year the state has made more plantings of trees than ever before since the reforestation movement was launched, it being estimated that 22,000,000 trees were installed on 27,000 acres. This is exclusive of plantings made by cities, counties, private conservationists and others, all of whom secure their supplies from the state nurseries.

After inspecting the nursery here the party plans a visit to the plantation of Thomas C. Luther. Between Saratoga and Chestertown a number of thriving municipal forests will be inspected while stops will also be made at Glens Falls and the Pack Demonstration Forest near Warrensburg. On the last day of the tour it is planned to visit some of the finer forests in the Adirondacks.

New Bleaching Process

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., September 16, 1932.—A federal patent has been granted to Dr. Hans John, Appleton, a research engineer with the Kimberly-Clark Paper Corporation, Neenah, Wis., on a bleaching process which permits a higher degree of bleaching of pulp without accompanying damage to the fibers during the treatment. The plan is not only suitable for bleaching sulphite pulp, but it can also be employed advantageously in bleaching sulphate pulps and kraft fiber.

The process calls for use of enormous excess of bleach and in preventing the excess of acids from damaging the fibers. Previously it has been the common practice to use small excesses of bleach, 5 or 10 per cent, in other bleaching methods. This has been due largely to inability to determine with absolute accuracy the exact amount of bleach required in full bleaching to a given whiteness. The result was often damage to the fiber, particularly in cases where a high degree of whiteness was to be obtained.

Employment of an excess of hypochlorite, in amounts up to 100 per cent or more over that actually to be consumed by the bleaching stock, without damaging the fiber or causing an enormous shrinkage, was heretofore considered practically impossible.

In the patented process this problem has been solved by adjusting the conditions of the full bleaching stage in such a manner that a large volume of the bleach solution is not materially altered during the chemical action on the pulp fiber suspended in it.

The bleached pulp obtained after removal of the excess bleach has been given an acid wash. During this treatment the decomposed products formed during the bleaching but left on the fibers, are now readily dissolved, causing the acidified water to turn a deep yellow, and it is at this point where the full whiteness attained is revealed.

Dr. John studied chemistry at the Universities of Prague, Dormstadt and Berlin. In 1912 he entered the paper industry. Later he became technical manager of the paper mill of the Gustav Roeder Company, Vienna. The paper mill is located at Marschendorf in Bohemia. He came to America in 1924 to take up his present work.

Ground Wood Producers To Organize

WASHINGTON, D. C., September 21, 1932.—A new organization of mechanical ground wood producers in Scandinavian and other north European countries has been about completed according to reports received here.

The new organization will number among its membership most of the ground wood producers in northern Europe, and will take the place of the old organization dissolved some months ago. The purpose of the new combine is to control or regulate shipments from mills and also market prices. All sales of member mills will be through the organization of its selling agency.

Niagara Falls Mills Busy

NIAGARA FALLS, N. Y., September 19, 1932.—Thomas M. Uptegraff, president of the Defiance Paper company and the Niagara Wall Paper company, announces that the two plants are operating near capacity, and have taken on extra hands. Mr. Uptegraff said there had been a steady increase in orders, and that the present operating schedules would be maintained until January 1. Fifty hands were added to the plant's staff within the past few weeks.

Chicago Paper Market Displays Improvement

Anticipated Autumn Increase in Orders for Various Standard Grades of Paper Proves Favorable Factor—Demand for Bond and Ledger Papers Becomes More Buoyant — Kraft Paper Situation Steadier—Sulphite Bond Section Makes Progress

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., September 17, 1932.—Seasonal improvement in the Chicago paper market was registered this past week. A quiet strengthening of prices in some markets took place and the expected Fall uptrend in orders helped to improve the general tone of the market. A distinct improvement in the kraft market was noted after the repercussions of the past few weeks and those identified with this market are hoping that the improvement will prove permanent and that the last of the uncertainties is over. The sulphite bond market also made progress although there are still instances of weakness, according to reports. The market is, however, much stronger than it was fourteen and eighteen days ago.

The bond and ledger market as a whole was a little improved, according to reports from various sources. Orders for paper from firms who are quickening the pace for Fall business began to come in and many executives feel that a normal improvement is to be expected each week for some time to come. Books and covers were little changed. The news print market, in the midst of the contract period, was reported as more unsettled but the improvement in general business, the many unusual news stories in the political year which the newspapers must feature, are expected to be contributing forces to a better demand. Ground woods continued slow but, say reports, gave no indications of losing ground. The board market executives were interested in the forthcoming Chicago meeting of the Paperboard Industries Association, expecting it to be an unusually important session. The entire local market is also looking forward to the National Paper Trade Association meetings to be held in Chicago the week of October 3. The waste paper jobbers report little improvement in demand.

Paperboard Convention Program

H. S. Adler, secretary of the Paperboard Industries Association, and his assistants, have arranged an attractive program for the September meetings of the association which will be held in Chicago next week at the Congress Hotel. The sessions will be prefaced by executive committee conferences and the regular program will get under way on next Wednesday morning, September 21, with the Paperboard group, vice-president Frank C. Ash presiding, getting the honor of leading off at 10:00 a.m. The Folding Box Group, chairman J. L. Barchard presiding, holds a luncheon meeting at noon while the Container Group sales executives' conference, under the leadership of J. M. Arndt, is to be held at the same time. The Container group will meet in the afternoon at 2:00 p.m. with vice-president M. M. Madison in the chair.

A general meeting of the three groups in joint session is to be held on the morning of September 22, the meeting to conclude in time to permit members to leave Chicago on early afternoon trains. President Henry D. Schmidt will preside at this meeting and it is at this session that the thoughts of the executives along the lines of shorter working hours and a balancing of employment will be expressed, according to reports.

The September meeting will be of more than ordinary importance because the Presidential and Group nominating committee will be appointed at that time. Each group will appoint its nominating committee to submit nominations for group officers for election at the respective group meetings in November.

A full attendance at the meeting is urged by Secretary Adler. Now that there are some strong indications that general business conditions are at last showing some improvement, it is most advisable that the factors in the industry come together at these meetings and adopt a policy whereby they may contribute to the general upturn and share in the improvement. Reports will also be submitted on the surveys of the paper board and container industry and on recent changes in corrugated and fiber box specifications.

Paper Salesmen to Entertain Merchants

Plans are being formulated for the semi-annual meeting of the National Paper Trade Association and its manifold branches which is to be held in Chicago at the Stevens Hotel on October 3, 4 and 5. A complete program is being arranged and the forthcoming session is expected to bring a goodly number of paper executives to Chicago, all of them interested in the unusual problems confronting the industry at this time, including market conditions, staggering of employment, control of production, new outlets and general administrative methods. A number of group meetings are expected to iron out many difficulties which, when eliminated, will be of real benefit to the paper market. The Chicago Division of the Salesmen's Association of the Paper Industry has decided to entertain the visiting paper executives in a big way and has planned an all day outing at the Olympia Fields Country Club on October 6. The paper executives will be given a chance to play lots of golf, will get in on a good luncheon and free-and-easy dinner in the evening, the procedure probably to follow the lines of the regular monthly sessions of the S.A.P.I. with, of course, the addition of many new contestants for the prize list. The salesmen have, during the summer months, utilized these golfing parties to greatly improve the local situation, at least from a selling standpoint. The mingling of salesmen in competition with each other on some such friendly ground as a golf course has brought results. It is very possible that the entire paper market can learn an invaluable lesson from this type of friendly get together.

Middle-West Salesmen Hold Golf Contest

The wind-up of the monthly golf tournaments held by the Middle West Division of the Salesmen's Association of the Paper Industry was held over the Olympia Fields Country club courses on Friday, September 16. Nearly fifty salesmen and guests enjoyed the splendid luncheon, the golf and the food and song fest in the evening. Although none of the special prizes were competed for, according to Courtney Reeves, chairman, plenty of prizes were on hand for the customary feature events. It may be that the golf party the salesmen are planning at the time of the National Paper Trade Association meeting in October will be utilized to provide competition for the President's trophy and others.

Prize winners at the September wind-up were as fol-

lows: Low Gross, Guy Beckett, Beckett Paper Company; low net 17 handicap and under, Frank Schoenfield, W. E. Roe; low net 17 to 30 handicap, F. W. Shaughnessy, of Shaughnessy, Kniep & Hawe, St. Louis; low net first nine holes, Bill Fleming, president of W. E. Roe Company; low net second nine holes, A. G. Hendry, Meade Sales Company; individual putts winner, W. B. Moore, Brown Company; low putts foresome, Harold Knott, H. F. Leahy, R. C. Johnson and A. J. Austin; low net foresome, Guy Beckett, Henry Prosser, Al Weisner and Courtney Reeves; low score on the par three holes, Jack Burruss, Albemarle Paper Company; blind bogey, J. W. Stephenson.

News of the Trade

The Midland Paper Company, Parker, Thomas & Tucker, and the Moser Paper Company, Chicago distributors for Howard Bond are reaping the local benefits of another of the excellent advertising pieces prepared by the manufacturers. On this particular occasion, Howard, in its series devoted to the uses of bond paper in business, mentions the important part played by Howard Bond in the development of the radio industry. "This new business of hurling entertainment and information through space," says a part of the copy, "depends on the Nation's business paper for important forms and records." To one who never considers the radio industry as a user of paper it is interesting to call to mind that the product is used for program announcements, continuity scripts, time schedules, sales orders, daily reports, contracts and correspondence.

"Why Do You Buy?" a sentence standing all "on its own" on an otherwise blank page, is utilized by the Swigart Paper Company to get paper buyers to read further and learn that they buy because of habit, confidence, novelty, trend and value. An impressive message concerning Hammermill Bond discusses these reasons and ties in this product to prove that Hammermill specifications fit exactly into each one of these. The folder also announces the new Idea Kit made up of commercial printing suggestions, filled with printed specimens of Hammermill Bond on white and thirteen colors.

J. Judd Dayton Dies

[FROM OUR REGULAR CORRESPONDENT]

CORINTH, N. Y., September 16, 1932.—J. Judd Dayton, prominent in business here, died last night at the age of 69 at the Saratoga Hospital, where he had been confined since he underwent an operation two weeks ago.

Mr. Dayton was president of the T. Elixman Manufacturing Company, making pulp, paper and paper cores for use in paper mills. He also was president of the Corinth Chamber of Commerce.

Two decades ago Mr. Dayton owned a jewelry business at Corinth and later became a director of the Corinth National Bank. At one time he served as Village President.

Surviving are his widow, Mrs. Mary Leavens Dayton; two sons, J. Kenyon and Barton; a daughter, Mrs. Harold Gray, and a sister, Mrs. Minnie Searles, all of Corinth.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., September 21, 1932.—The Government Printing Office has received the following bids for 1,100 sheets of green gummed paper; Virginia Paper Company, at $13.20; Mathers-Lamm Paper Company, $12.65; R. P. Andrews Paper Company, $15.73; and Walker Goulard Plehn Company, $12.44.

I. P. Co.'s Second Quarter Earnings

International Paper and Power Company reports that gross sales in the second quarter were $31,209,931 compared with $36,019,240 in the second quarter of last year; net revenue including other income and available for interest, depreciation, etc., was $8,877,333 against $10,488,-226; and balance deducted from surplus was $1,856,237 compared with $1,013,436 added to surplus in the second quarter of last year.

For the six months gross sales were $67,126,769 against $71,494,540 in the corresponding period of last year; net revenue including other income was $19,577,508 compared with $20,483,458; and balance deducted from surplus was $2,255,803 against $1,606,997 added to surplus in the first six months a year ago.

Quarter Ended June 30	*1932*	*1931*
Gross Sales	$31,209,931	$36,019,240
Net Revenue, Inc., other income	8,877,333	10,488,225
Less: Int. and disc. on funded debt, income taxes, divs. and amounts applicable to minority subsidiaries	8,633,860	7,622,941
Depreciation	2,099,710	1,851,849
Balance	1,856,237*	1,013,436

* Deficit

Six Months Ended June 30	*1932*	*1931*
Gross Sales	$67,126,769	$71,494,540
Net Revenue, inc. other income	19,577,508	20,483,458
Less: Int. and disc. on funded debt, income taxes, divs. and amounts applicable to minority subsidiaries	17,569,655	15,147,515
Depreciation	4,263,656	3,728,946
Balance for I. P. & P. Co. Dividends	2,255,803*	1,606,997
Less Dividends on I. P. & P. Co. Preferred Stocks		1,632,565
Balance deducted from surplus	2,255,803	25,568

* Deficit

In the above statement income and expenses of Canadian subsidiaries have been taken at parity of exchange without adjustment of differences between foreign and United States currencies. All profits and losses actually realized in transactions involving exchange have been included in the above results.

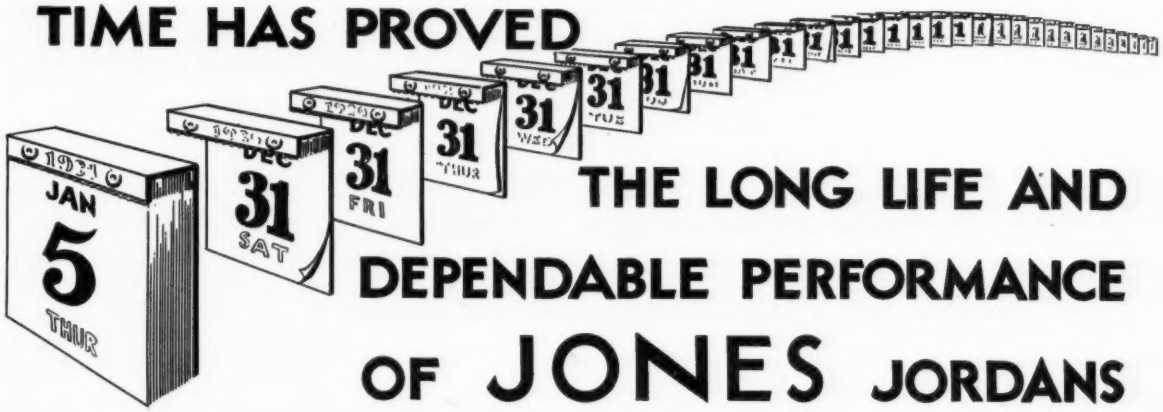
Archibald R. Graustein, president of the company, comments as follows in the statement sent to shareholders:

"With selling prices for all pulp and paper products at low levels and with volume of business since the first quarter of this year showing by far the most pronounced decline of any period during the depression, gross sales of the paper manufacturing subsidiaries for the first six months in 1932 fell about $10,000,000 from 1931. This fall was partly offset by increases in gross revenues of power subsidiaries due to the inclusion in the 1932 figures of North Boston lighting properties and Green Mountain Power Corporation, which were not included during the first six months of 1931 as control was not acquired until later in that year. Under present conditions operating expenses, depreciation, interest and other deductions of these recently acquired companies approximately offset the additional gross revenues they bring in so that their acquisition has had practically no effect on consolidated net profits and losses.

"Economies in operation and administration already effected have offset a substantial portion of the drop in gross revenues, but operations for the second quarter this year resulted in a loss after all charges of $1,856,236 as compared to a loss of $399,567 for the first quarter and a profit of $1,013,435 during the second quarter of 1931.

"Consolidated notes payable have been reduced from $36,321,780 as of December 31, 1931, to $26,364,483 at June 30, 1932. Of the June 30th figure, $7,564,481 represents bank loans and other notes payable of New England Power Association and subsidiaries, $14,500,000 bank loans of International Paper Company and $4,300,002 bank loans of Canadian and Newfoundland subsidiaries of the paper company. The entire $14,500,000 bank debt of International Paper Company has recently been extended to August 15, 1933."

TIME HAS PROVED



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BECAUSE of their rugged construction, and the use of the best materials obtainable, JONES Jordans assure continuous, reliable operation over a long period of years. This statement is backed by an unrivalled performance record in different mills where they have been subject to the severest use. This performance record established by JONES Jordans, covers a period of thirty-five years, which is ample evidence of the high standard of their manufacture.

There is a JONES Jordan to meet your particular mill condition . . . any one of eight sizes from which you may choose. If you are interested in effecting important economies in your mill, it will pay you to see the latest type No. 4 JONES Jordan before specifying any other make of equipment. Its exclusive, outstanding features make it years ahead of any other Jordan now on the market.

Descriptive, Illustrated Bulletin Mailed on Request

NEW JONES
Split Adjustable Shell Jordan

PAPER-MAKING MACHINERY
E.D. JONES & SONS COMPANY
ESTABLISHED 1856
PITTSFIELD, MASS.

Jones

E. D. JONES & SONS COMPANY-PITTSFIELD, MASS.
Builders of High-Grade Machinery for Paper Mills

5375

New York Trade Jottings

The American Envelope Manufacturing Corporation has moved its plant from 21 Howard to 22 Howard street.

* * *

Carew Manufacturing Company, of South Hadley Falls, Mass., has appointed the Union Card and Paper Company and the Sutphin Paper Company, Inc., New York, as metropolitan distributors of Carew Empire Bond.

* * *

The National Association of Waste Material Dealers, Inc., is holding an informal gathering and buffet luncheon today, Thursday at the association's headquarters, Times Building, New York.

* * *

Ellsworth Geist, of the S. D. Warren Company, paper manufacturers, is chairman of the Program Committee of the Associated Printing Salesmen, Inc., New York. An interesting series of events has already been arranged for the coming season.

* * *

Public attention is directed to the fact that the process of treating rosin during the course of manufacture with any of the common water soluble alkalis is protected by U. S. Patent No. 1,787,281, issued December 30, 1930 to Robert C. Palmer, and now owned by the Newport Industries, Inc.

* * *

Fred E. Messner, of the Commodity Service Division of the Brookmire organization, was the guest speaker at the regular weekly luncheon and meeting of the Eastern Division of the Salesmen's Association of the Paper Industry, held last Monday at the Roosevelt Hotel, New York. Mr. Messner gave an able talk on commodity prices and analysed the favorable and unfavorable factors in the previling business situation in an illuminating and interesting manner.

* * *

Numerous paper manufacturers are reserving space for the Direct Mail Exposition and Convention to be held at the Hotel Pennsylvania, New York, from October 5 to 7 inclusive. The following have already secured space: American Writing Paper Company, Albemarle Paper Company, Appleton Coated Paper Company, Berlin & Jones, Inc., Blake-Butler Paper Company, A. M. Collins Manufacturing Company, Martine Cantine Paper Company, Hammermill Paper Company, Howard Paper Company, International Paper Company, McLaurin-Jones Paper Company, Miller & Wright Paper Company, Paper Makers Advertising Club, Schlosser Paper Company, Wrenn Paper Company and Strathmore Paper Company.

C. H. Smith Corp. Shows New Dandy Rolls

One of the interesting side lights of the fall convention of the Technical Association of the Pulp and Paper Industry held at Holyoke, Mass., during the past week was the exposition of watermarked papers and dandy rolls held at the Willimansett plant of the C. H. Smith Corporation, whose main plant is at West Springfield, Mass. In addition to the display of new open end dandy rolls showing their new patented removable cover, they also exhibited a large number of letterheads carrying the private watermarks of leading business concerns as well as showing the embossed plates from which these watermarks were made. Many of those attending the convention took advantage of the opportunity to observe how dandy rolls were made and learn the vast numbers of leading concerns who were today using their own private watermarked papers.

Paperboard Industries to Meet

The Paperboard Industries Association will meet at the Congress Hotel, Chicago, September 20, 21 and 22. The following meetings will be held on Wesdnesday: Paper Board Group, vice president Frank C. Ash, presiding; Folding Box Group, chairman J. L. Barchard, presiding; Container Group Sales Executive Conference, J. M. Arndt, presiding; Container Group, vice president M. M. Madson, presiding. On Thursday will be held the General Meeting of the three groups in joint session with president Henry D. Schmidt, presiding.

As prescribed by the constitution, each of the three groups will appoint two members to serve on the presidential nominating committee, which committee of six will nominate a president to be elected at the November meeting.

Each group will appoint its group nominating committee to submit nominations for group officers for election at the respective group meetings in November.

Now that there are some strong indications that general business conditions are at last showing some improvement, it is most advisable that the factors in the paperboard, container and folding box industry come together at these meetings and adopt a policy whereby they may contribute to the general upturn and share in the improvement.

Reports will be submitted on the surveys of the paperboard and container industry, which are matters of extreme importance at this time.

A complete report will also be given on the recent important changes in corrugated and fibre box specifications, and on recent classification changes authorizing the use of paperboard boxes in new fields.

News Print Production for June

Production of news print in Canada during August, 1932, amounted to 157,919 tons and shipments to 154,881 tons, according to the News Print Service Bureau. Production in the United States was 79,529 tons and shipments 77,340 tons, making a total United States and Canadian news print production of 237,448 tons and shipments of 232,221 tons. During August, 23,513 tons of news print were made in Newfoundland and 1,484 tons in Mexico, so that the total North American production for the month amounted to 262,445 tons.

The Canadian mills produced 206,929 tons less in the first eight months of 1932 than in the first eight months of 1931, which was a decrease of 14 per cent. The output in the United States was 80,812 tons or 10 per cent less than for the first eight months of 1931, in Newfoundland 8,235 tons or 4 per cent less, and in Mexico 1,635 tons less, making a North American Decrease of 297,611 tons or 12 per cent.

Stocks of news print paper at Canadian mills totalled 50,029 tons at the end of August and at United States mills 35,982 tons, giving a combined total of 86,011 tons compared with 80,784 tons on July 31.

Business Improves at Hudson Falls

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., September 19, 1932.—An improved tone in business conditions is reported from the Union Bag and Paper Corporation and virtually all machines are in operation at both the old and new bag manufacturing plants. It is said that a number of large orders for bags have been received recently which warranted increased production. A number of new hands were hired during the past week and indications are that steady operating schedules will be effective for some time.

There are Very Definite Uses for

AMERICAN USS STAINLESS AND HEAT-RESISTING STEEL SHEETS AND LIGHT PLATES

THESE products find a natural adaptability in many modern fabrications, whether from the standpoint of utility or of ornamentation. The chemical, dairy, culinary, manufacturing, automotive and architectural fields furnish examples of such applications.

Where steel sheets are needed but neither steel of regular analysis nor copper-bearing steel will serve, engineers and operating men have recourse to the U S S series of Chromium and Chromium-Nickel alloys. These vary in properties and likewise in cost. Taken all together, they have a very wide range of adaptability. Choice can be made of the formula best suited to any particular use—corrosion and other conditions being taken into account.

Inquiries regarding any application of Stainless Steel Sheets or Light Plates, or any product fabricated from either, will be given careful attention. Booklets and literature will be mailed you upon request.

Chromium-Nickel Steels *Austenitic*	Chromium-Alloy Steels *Ferritic*
USS 18-8	USS 12
USS 18-12	USS 17
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U S S Chromium-Nickel Alloy Steels produced under licenses of Chemical Foundation, Inc., New York; and Fried. Krupp A. G. of Germany

This Company manufactures a complete line of Sheet and Tin Mill Products for all known purposes

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Federal Shipbuilding and Dry Dock Company
Illinois Steel Company
National Tube Company
Oil Well Supply Company
The Lorain Steel Company
Tennessee Coal, Iron & R.R. Company
Universal Atlas Cement Company

Pacific Coast Distributors—Columbia Steel Company, San Francisco, Calif.
Export Distributors—United States Steel Products Company, New York, N. Y.

Remington Rand To Buy Paper

At least twenty-four per cent of the $4,500,000 order for supplies, issued last week by James H. Rand, Jr., chairman and president of the board of Remington Rand, Inc., will go for paper and paper products, it has been announced. The effect of this order in the paper industry should be a stimulation of activity and an encouraging sign of improved conditions.

Based on the belief that business conditions are on the upturn and that commodities should be bought at present levels, Mr. Rand ordered his purchasing department to buy immediately four and a half million dollars worth of supplies for use during the balance of the year. In addition to the paper industry, the order will affect activity in approximately twenty other industries.

Mr. Rand's announcement followed closely on the appeal made by Secretary of Commerce Roy D. Chapin over the radio August 22 to business leaders and executives for a mobilization of resources to stimulate business and relieve unemployment. Although he was influenced in making the announcement by Mr. Chapin's appeal, Mr. Rand made it plain that his decision to buy came as a result of intensive study of present prices and the belief that their levels at this time are advantageous from the point of view of the manufacturer.

In addition to the purchase of materials for this year, Mr. Rand instructed his purchasing department, wherever possible at present prices, to place contracts covering all of the company's requirements for the entire year of 1933. Such contracts are to be based upon an anticipated business increase of 25 per cent over the company's 1932 requirements.

Remington Rand, Inc., manufactures Remington typewriters, Powers Accounting Machines, Kardex and Library Bureau Systems Equipment and other office supplies. The purchases made at this time, Mr. Rand explained, will embrace large quantities of paper, steel, wood, cloth and other raw materials which go into the making of such equipment.

Boston Paper Market Fairly Active

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., September 19, 1932.—As a whole the Boston paper market continues in a favorable condition. The week has seen some improvement in a number of cases, although in others activity has not increased. A general feeling of confidence prevails, however, with a few of the major industries, particularly textiles, showing an upturn. The flow of orders, which began a few weeks ago from large establishments that have reopened after a considerable period of idleness, keeps up, with at least a moderate demand for bonds and ledgers and fine writing papers, together with other requirements, including wrapping paper and specialties. Purchasers of kraft and paper products for special purposes are ordering more freely than a few weeks ago, although kraft is somewhat spotty. The price situation in No. 2 kraft appears to have improved slightly, at least to such an extent that New England sellers are now reported to be holding firm to .02½, although offers of lower figures are rumored. While the status of this grade is regarded as deplorable, the general condition of the kraft market seems more encouraging. Box board prices are firm, filled news board holding at $25 to $30. Chip board is quotoed at $25 in carload lots.

The paper stock trade is more optimistic, with the rise in prices of a number of grades, although buyers, in some cases at least, are rather hesitant in regard to paying prices asked. A feature of the waste paper market is the demand for No. 1 kraft papers, which have advanced to .90 @ 1.00. Due to continued low water at some of the mills ordinarily using sulphite pulp and kraft pulp, manufacturers have been obliged to buy more old kraft papers and white blank news. Demand for waste paper as a whole, however, has eased off somewhat during the week. Gunny bagging, both foreign and domestic, has been moving briskly.

With the increase in industrial activity, a considerable volume of twine has been sold of late to various mills. The advance in raw cotton has accelerated the movement of twines made of this material.

Demand Broadens in Indianapolis

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., September 19, 1932.—The past week has seen a little broadening of the paper demand in most lines. In fact, according to the local trade, the situation is more hopeful than it has been for months. Just how long this situation will remain is problematical, but the trade believes that demand will make a slow recovery. The trade is not looking for any rush but expects a gradual improvement at least until something approximating a normal demand is reached. Nor does the trade here want any such boom season as featured a couple or three years ago, for they remember the last period and are not anxious for another.

Most of the jobbers here have more adequate stocks now than they have carried for some time. The stocks are not large, but they are well balanced. The fine paper market is in better condition than it has been but there has been a falling off of the summer specialty demand, which, however, was to be expected. Cooler weather was earlier this year than last and caused an earlier slump.

One outlook for fine paper seems to come from the printers who report more interest in direct mail campaigns than for some time in spite of higher postage rates. Most of this matter will be sent second class instead of first class.

The converters report a livelier demand. Bags are moving in fair shape with inquiries that lead to the belief that more demand is just around the corner. The smaller jobbers in bags report a good business. This is particularly true of those jobbers who are dealing on an entirely cash basis, selling in small lots and getting their money on delivery. Box and container factories report more inquiries and some more orders. The fact that many former users, who have been out of the market for a long time or have found their requirements very small, are making inquiries for larger orders and are placing some of them, is a very hopeful indication.

While the paper stock situation is little improved, the last week saw an advertisement in one of the local papers for stock, the first for a long time.

Racquette Gets Foreign Order

[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., September 16, 1932.—The Racquette River Paper Co. is reported to have recently entered into contracts with several foreign countries for turning out an automatic counting machine paper similar to the brand that has been produced during the past year for the large wholesale selling establishments in this country. The entrance into the specialty field is believed to be largely responsible for enabling the mills to operate at near capacity. By securing the European contracts the company insures steady work for its employees for some time.

PRESTIDIGITATION

Great stuff on the stage,

BUT...

G-E Selsyn draw adjuster and G-E enclosed paper-machine speed-control panel . . . two important units that help simplify paper-machine operation

It's out of place in the paper- machine room! There, the less time required of your paper-machine tenders for "juggling" rheostats, in chasing from one end to the other, or from side to side in pursuit of elusive draw adjustments, or in shifting belts, the lower goes the unit cost of making paper.

Why require that your paper-machine tenders be prestidigitators? With General Electric sectional drive, all draw changes can be made from the front of the machine by means of simple handwheels . . . a method that is as positive as it is easy. Uniform speed of response of speed regulators at all machine speeds is assured. Driers and calenders can be started without disturbing the couch, and any number of sections can be started simultaneously. All of these factors spell economy and consistent paper quality for you.

Investigate G-E sectional drive. Your nearest G-E office will gladly coöperate. If more convenient, write General Electric Company, Industrial Department, Schenectady, N. Y. for complete information.

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GENERAL ELECTRIC

PAPER TRADE JOURNAL
ESTABLISHED 1872

Published at 34 North Crystal St., East Stroudsburg, Pa. Executive and Editorial Offices, 10 East 39th St., New York, N. Y.

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Price, Per Copy, 10 Cents — United States, Per Annum, $4.00
Canada, including tax, $7.50; Foreign Countries in Postal Union, $6.00

Member Audit Bureau of Circulations

Vol. XCV New York, September 22, 1932 No. 12

COMING EVENTS

PAPER AND PULP SECTIONS OF THE NATIONAL SAFETY COUNCIL, Twenty-first Annual Safety Congress and Exposition, Wardman Park and Shoreham Hotel, Washington, D. C., October 3, 4, 5, 6 and 7, 1932.
NATIONAL PAPER TRADE ASSOCIATION, Semi-Annual Convention, Stevens Hotel, Chicago, Ill., October 3, 4 and 5.

FOREIGN PAPER TRADE

United States exports of paper and paper products in July amounted to $1,202,860, representing decreases of 37 per cent, 12 per cent, respectively, when compared with the first seven months of 1931 and the preceding month, according to the Paper Division of the Department of Commerce. Exports of newsprint were valued at $50,635, being an increase of 45 per cent when compared both with the preceding month and the corresponding month last year, while wrapping paper showed increases of 25 per cent and 15 per cent by like comparison.

The following other items registered increases over June: Bristols and bristol board, 58 per cent; paper towels and napkins, 25 per cent; sheathing and building paper, 20 per cent; surface coated papers, 18 per cent; paper bags, 15 per cent and toilet paper, 7 per cent. Exports of greaseproof and waterproof papers, old newspapers, wallboard of paper or pulp, hanging paper boxes and cartons and envelopes showed only slight declines compared with June.

The heaviest decrease occurred in box board, the exports of which were 58 per cent below those of June, and those of other paper board, blotting paper, vulcanized fiber, sheets, strips and rods were approximately 50 per cent short of June's record. Other decreases were the following: Tissue and crepe paper, 32 per cent; fiber insulating lath or board, 35 per cent; cover paper and cash register and adding machine paper, each 25 per cent; book paper, not coated, 23 per cent; other writing paper and filing folders, index cards, and other office forms, each, 15 per cent.

Compared with the corresponding month of 1931, the heaviest decreases are shown in wall board of paper or pulp, fiber insulating lath or board, boxboard, cash register and adding machine paper, paper hangings, other paper board, and cover paper, the losses in which ranged from 60 to 75 per cent. Those which were from approximately 40 per cent to 55 per cent lower included vulcanized fiber sheets, strips, tubes and rods, boxes and cartons, filing folders, index cards and other office forms, blotting paper, paper towels and napkins, sheathing and building paper and other writing papers, while small decreases (15 per cent and less) occurred in book paper, not coated, toilet paper, bristols and bristol board, surface coated paper and tissue and crepe paper.

Exports of paper base stocks in July were valued at $199,860, against $555,750 a year ago, or a decrease of 65 per cent, but representing an increase of 27 per cent over the preceding month. Those of sulphite wood pulp, with a valuation of $137,488, showed a decrease of 45 per cent over a year ago, but an increase of 45 per cent over June. Exports of rags and other paper stock amounted to $53,735, a slight increase over June and a 10 per cent decrease compared with July, 1931. Soda wood pulp exports were valued at $2,730 in July against $13,480 a year ago and $960 in June.

July imports of paper and paper products amounted to $7,348,414, against $10,246,881 a year ago and $8,363,398 in June. Newsprint imports were valued at $6,713,629, a decrease of 27 per cent compared with the corresponding month last year and a 4 per cent decrease compared with the preceding month. Cigarette paper imports amounted to $220,215, representing a 75 per cent decrease from June imports, but being 8 per cent higher than a year ago. Incoming shipments of greaseproof and waterproof papers, Kraft wrapping paper, uncoated paper, decorated or embossed, surface coated papers, tissue and crepe papers, wall paper and paper boxes were also considerably lighter than in June, but those of other wrapping papers, writing and drawing paper, pulpboard in rolls, paperboard, pulpboard and cardboard, duplex decalcomania, not printed, and papier mache and pulp manufactures showed heavy increases over June.

Importations of paper base stocks in July were low, amounting to only $3,021,443, against $6,626,157 a year ago and falling approximately three quarters of a million dollars short of June imports. Pulpwood imports amounted to $628,891, against $1,335,230 in July, 1931, and $931,671 in June, this year.

The heaviest decrease is registered in soda pulp, which amounted to only $972, compared with $14,284 a year ago, and showing a decrease of 80 per cent over June. Other decreases compared with June were as follows: Mechanically groundwood pulp, unbleached, 35 per cent; bleached, 17 per cent; sulphite wood pulp, unbleached, 20 per cent, bleached, 3 per cent; unbleached sulphate pulp, 20 per cent, bleached, 15 per cent; while an increase of 32 per cent is shown in rags for paper stock.

Files Brief for Paper Stock Shippers

Charles J. Browne, Commerce and Traffic Counselor, has filed a 22 page "Statement and Argument" with H. Wilson, Chairman, Eastern Commodity Rate Revision Committee, appealing from the basis approved by the Carriers' Rate Committee at its July meeting in Buffalo. The brief is very extensive and outlines the general conditions in the industry; value of the commodities; effect of the recently approved bases as to shipments within the various rate territories and inter-territorily between these territories; average loading; suggested carload and less-than-carload bases and paper stock description. Mr. Browne has gone into the situation very thoroughly in his brief and illustrated on numerous occasions the effect the 27½ and 25 per cent recently approved by the Carriers' Committee on shipments moving in Official Classification territory and pointed out that if such bases were permitted to go into effect, it would remove the market from the East on paper stock, and in favor of shippers located in the Southeast, Southwest and Western Trunk Line Territories, where the carriers have either established a much lower basis of rates or where they are seriously contemplating establishing rates on the basis of 15 per cent of first-class.

Mr. Browne's brief suggests the establishment of rates on scrap or waste paper and rags and other paper-making materials, for general application in Official Classification Territory, on the following bases:—22½ per cent of first-class, minimum 24,000 pounds—20 per cent of first-class, minimum 30,000 pounds, 17½ per cent of first-class, minimum 40,000 pounds. If such bases of rates were established, Mr. Browne contends that such rates would be comparable, mile for mile, with the rates now in effect in adjacent territories and that such bases of rates will preserve the carriers' present revenues and create an incentive for better packing and loading in Official territory. With regards to less-than-carload shipments, the brief suggests the establishment of rates based on 35 per cent of first-class, and if established, it is contended, that it would make the business unattractive for the trucking companies and would stimulate the movement from small country dealers to larger centers. Mr. Browne stressed the necessity of less-than-carload rates on paper stock that are lower than the Classification basis, and if favorable action is taken on this suggestion, it is felt that the carriers will regain traffic that they have lost by successive increases.

The Statement and Argument submitted by Mr. Browne was on behalf of the New York Association of Dealers in Paper Mills' Supplies, Inc., and the Paper Stock and Pulp Traffic Association, New York, N. Y.; S. Shapiro & Sons, William A. Cohen & Co., Inc.; Atlantic Waste Paper Company and Leeson & Price, Baltimore, Md.; P. Garvan, Inc., Hartford, Conn.; Jas. J. Graham Paper Company, Inc., East Cambridge, Mass.; P. H. Graham & Sons Company, Boston, Mass.; and Harry Burton, Worcester, Mass.

Shippers of rags, scrap or waste paper and other paper-making materials located along the Eastern Seaboard, are to be congratulated on having someone champion their cause, particularly in the person of Mr. Browne, and it is believed that if the Carriers Rate Revision Committee should rescind its previous recommendations, that Mr. Browne in a large measure, will be responsible for bringing about such favorable action.

Miami Valley Reports Improvement

DAYTON, Ohio, September 19, 1932.—That the paper trade is slowly but surely emerging from its lethargy, a condition not unlike that existing in other branches of industry, was evidenced on several sides this week throughout the Miami Valley and this section of Ohio.

Mercantile trade is reviving to a considerable extent in most towns and cities and this fact will redound to the benefit of dealers in wrappings, twines, boxes, bags and various kinds of paper commodities.

President Eide, of the Ohio Bell Telephone Company, completed his survey in the valley as chairman of the committee supervising the rehabilitation work of the Government.

When in Dayton he said he had found some plants that had not been repaired for three years. In others, occasional rehabilitation plans had been followed, while in not a few, up-to-date methods have been employed and preparations are being made for handling orders of all kinds that are certain to be forthcoming when trade revival gets under full swing.

In the paper mills, he found unusually good conditions in mill equipment. As a rule, paper mills have kept abreast of the times and as this industry was not entirely paralyzed during the period of depression, many mills having operated part of the time, it is believed it will be in better shape to go ahead under full blast than many other important industries.

Labor unions, it seems, are hopeful. A spokesman for the working forces said:—"The country is in need of manufactured goods and the people are in need of work. Stocks of goods and the supply of merchandise are at the lowest ebb they have been in many years. Goods are moving slowly only because of reduced buying power.

"Business men have been standing still in the face of what they described as appalling handicaps—scarcity of capital, failing banks, uncertainty in legislation, soaring taxes and surpluses of unconsumed goods.

"Most of these obstacles, with the exception of high taxes, have largely disappeared. New times are ahead but it depends upon the manufacturers and business men themselves just how quickly industry will regain its momentum."

Busy Unloading Russian Pulpwood

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., September 16, 1932—The unloading of huge quantities of pulpwood from foreign vessels is occupying the attention of port officials here and about fifty freight cars a day are being sent out to mills of the International Paper Company at Corinth and other places. Officials directing the shipment said that the Corinth mill was being provided with all of the product that it can handle and incidentally the transportations are aiding in allowing full time operations.

It was learned that eight ships loaded with the Russian product have arrived here since July and about sixteen more are expected before the close of the navigation season. Indications are that the tonnage handled at the port this season will far exceed the mark of last year when over 100,000 tons of foreign pulp wood was shipped through the local terminal.

Japanese Paper Production

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., September 19, 1932.—Production of paper in Japan by the mills of the Japanese Paper Manufacturers' Association during the first half of the year totals 322,348 short tons, as against 334,332 tons during the corresponding six months of last year. Sales during the period mentioned came to 330,318 and 332,189 tons respectively. Between 40 and 45 per cent of the paper produced comprises newsprint paper.

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

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Beating

Beating device for fibrous materials with low beating pressure and large working surface. Gerald Strecker. Wochbl. Papier Fabr. 63, No. 4: 59 (Jan. 23, 1932).—Report of the "revolving cross" beater. Four stream lined parts do the beating and they are fixed in such a way that the force of gravity on the single stone is compensated. This type of beater is built up to capacities of 200 kilograms charge.—J. F. O.

Breaker beater. Vorbruggen. Papier-Fabr. 29, No. 42: 670-71 (Oct. 18, 1931).—Description of a triplex system for the converting of old papers into paper stock. After the broken up paper leaves the breaker beater, it is pumped into a container supplying a press which increases the consistency from 6 to 8 per cent to as high as 35 per cent. This thickened stock is then fed to a kollergang or kneader and finally to the paper machines. —J. F. O.

Beater device for fibrous materials with low beating pressure and large working surface. Papier-Fabr. 30, No. 5: 54 (Jan. 31, 1932).—Description of the beater invented by Strecker. Disadvantages of the present beater and the advantages of this new device are discussed. —J. F. O.

Beater Control. Helgo W. Jespersen, assignor to Western Electric Co. U. S. pat. 1,840,101, (Jan. 5, 1932). —A screen-covered drum is mounted in the beater trough on the side opposite the roll. It is rotated by the travel of the stock in the trough and is provided with fins designed so that the water passing through the screen is elevated and discharged into the hollow shaft which delivers it into a funnel mounted on a hinged arm. The bottom of the funnel has a restricted outlet. As beating progresses the slowness of the stock increases and less water is discharged into the funnel. When the outlet becomes more than sufficient to handle the flow, the funnel empties and gradually rises. This operates an electrical circuit which shuts off the beater motor and operates a signal (light or bell). The device is adjusted to stop the motor when the desired degree of beating has been reached.—A. P.-C.

Sizing

Process and Apparatus for Making Rosin Size Emulsions. Samuel W. McCune, Jr., assignor to Newport Industries, Inc. U. S. pat. 1,846,220 (Feb. 23, 1932). —The rosin soap and hot water are mixed through a T-fitting designed on the injection principle so that the hot water exerts a suction on the rosin supply. The mixture is delivered onto an emulsifier consisting of an elliptical casing with an impeller carrying radially extending curved blades, similar to the type frequently used for air compressors.—A. P.-C.

Contribution to the Knowledge of Measuring the Value of Potato Flour in the Technology of Paper. August Knoll and Fritz Holder. Papier-Fabr. 30, No. 8: 85-88 (Feb. 21, 1932).—The viscosity of the alkali starch as a measure for the adhesive power. The alkali number as a means of expressing the acid content. The relation of the pH value to the alkali number. Data over the ash and water content of the flour as well as the testing of the same for free chlorine and chlorine ions.—J. F. O.

Penetration of Printing Inks and the Sizing of Paper. Drechsel, Papier-Fabr. 29, No. 23A: 97-103 (June, 1931). —The testing of ten different kinds of paper for their sizing qualities was carried out by using a standard ink and a linseed oil which had previously been specially treated. The test liquid to use should be wholly dependent on the intended use of the paper, papers used for printing purposes are tested with linseed oil, while writing papers are tested with the standard ink. A new apparatus designed by Albrecht was described and results obtained with it were compared with those obtained from the Klemm method.—J. F. O.

Problem of Sizing of Stock. Fritz Arledter. Papier-Fabr. 29, No. 48:854-856 (Nov. 29, 1931).—Polemic over the subject of sizing, theories and actual practice discussed. —J. F. O.

Sulphite Pulping Process Developments

Kogensgatan 17, Oslo, Norway,
August 22, 1932.

EDITOR, PAPER TRADE JOURNAL:

At the Fall meeting of the Pacific Section of the Technical Association of the Pulp and Paper Industry Mr. A. H. Lundberg read a paper which subsequently appeared in the December 17, 1931, issue of the PAPER TRADE JOURNAL. In his paper, Mr. Lundberg mentions certain advantages gained in using indirect heating methods in sulphite cooking, and makes some rather sweeping statements in this regard. Thus, I am of the opinion that Mr. Lundberg gives an erroneous impression by unduly crediting an indirect heating system with forced circulation as against direct heating with similar circulation.

Mr. Lundberg is correct in pointing out that, as regards the sulphate industry, the problem of circulation was solved years ago by the application of suitable pumping apparatus and outside heat exchanger. (or calorisator.) As a matter of fact, I introduced this method to the sulphate industry; and as early as 1912, I had obtained basic patents for a system entitled: "Indirect heating with forced circulation," to be applied both in sulphite and in sulphate mills. Due to the lack at that time of suitable acid resistant steels, my method was primarily made use of in sulphate mills. In this latter case, common steel constituted a cheap and reliable material for the heating and circulating apparatus; and besides, the indirect heating principle offered very definite advantages to the sulphate process, due to the importance of avoiding dilution of the cooking liquor. However, it would be a mistake from this to draw the conclusion that, as regards the *sulphite* industry, indirect heating is of more importance than circulation.

Such a point was justified in earlier years, when pulp cooked by the indirect, or Mitcherlich, method commanded a better price than directly cooked pulp; but the principal reason for this more often was poor and uneven cooking acid than lack of circulation in the digesters. Today, with the advent of acid resistant steel, the picture has changed completely; and I feel that I can speak with some authority on this subject, as I started to advocate and develop forced circulation systems as early as 1905. It is strange to see that a certain number of men who, like Mr. Brobeck of Korsnaes, who formerly cooked indirectly, by means of steam coils in the digesters, now do not seem capable of emancipating themselves from a faith in the indirect cooking principle. In accordance, they have proceeded with systems combining an outside heater and pump, and naturally have obtained better results in this way than when heating indirectly without forced circulation.

Now, I am the first to admit that indirect cooking may offer considerable advantages to mills which either have a surplus of low pressure steam, or which want to obtain recovery of products from their cooking liquor. As regards the main point, however, viz: pulp quality, what matters is whether the pulp is cooked by direct or by indirect means, as long as really efficient circulation is being obtained. As one proof for this contention I may mention the experience of one of the leading Swedish mills, which earlier produced a high class Mitcherlich pulp by means of coil heating. To start with, the coils in one of their digesters were removed, and my inside circulation system was installed, with direct steaming. This mill, which also converts a part of their production into paper, thus was in a position to obtain direct comparison between the pulp cooked in the old and in the new way. The net result today is that all their digesters are equipped with my circulation system, and that all coils are removed.

As further evidence I am attaching two tables of figures, giving the results of tests conducted by the Central Laboratorium of Finland on two different makes of pulps.

The first table refers to pulp cooked in the Hackman and Company sulphite mill, where my circulation system is installed. The pulp was strong sulphite, cooked in 12.5 hours, the maximum temperature being 135 deg. C.

The second table contains figures for four cooks of the Toppila mill, a new concern controlled by English and Finnish interests. These figures were obtained from data given by B. Skogström, an engineer at the Toppila mill, in a paper read before the Association of Finnish Paper Engineers at its meeting on December 1st, 1931. Two of the cooks referred to were of slightly over 13 hours' duration, while the remaining two cooks were of the slower type, with cooking time of respectively 17.2 and 18.7 hours. The maximum temperature in all cooks was 125 deg. C. The shorter cooks were with seasoned wood, while in the longer cooks wood direct from the river was used. All tests on samples from these cooks were conducted by the Central Laboratorium of Finland, so that the figures so obtained provide an excellent basis for comparison with those referring to the pulp from Hackman.

A study of these tables shows that the strength characteristics of the directly cooked pulp of Hackman are just as good, and in certain respects even better, than those of the indirectly cooked pulp of Toppila. Averaged to 50 degrees Schopper-Riegler, (to which all the figures for the Toppila pulp refers), the Hackman figures would be: breaking length, between 9400 and 9500 meters; bursting strength, 69.2; tearing strength, 1.31. As regards the Toppila figures, one arrives at slightly lower averages, in spite of the fact that the Toppila cooks referred to were of longer duration and lower maximum temperature than what was the case at the Hackman mill.

E. MORTERUD, Engineer.

TABLE NO. 1.

Hackman:

Cooking Time	12,5 Hours
Max. Temperature	135 Degrees C.
Enso Number (Hardness/Bleachability)	7.03

Beater Test:

Beating Time Minutes	Degrees Schopper Riegler	Breaking Length Meter:	Bursting Strength sq. meters	Tearing Strength sq. meters
0	13,0	4050	27,7	2,12
20	26,5	8925	62,3	1,47
30	42,0	9340	68,3	1,36
40	56,0	9565	70,2	1,27
60	71,0	9755	72,2	1.11
90	84,5	9190	74,1	0,97

TABLE NO. 2

Toppila:							
Sample No.			II		IV	VI	V I
Enso Number (Hardness/Bleachability)			6,5		6,7	5,7	6.0
Cooking Time, Hours			18,7		17,2	13,2	13.2
Max. Temperature, °C			125		125	125	1.5
Strength Characteristics, at 50 Degrees Shopper-Riegler:							
Beating Time, minutes	41	34	34	36	36	31	36
Breaking Length, meters	8650	9720	9050	9400	9150	9475	92.0
Bursting Strength, sq. meters	64,5	67,5	65,0	68,2	68,3	67,9	71.0
Tearing Strength, sq. meters	1,44	1,37	1,38	1,25	1,37	1,53	1.32

TAPPI SECTION, PAGE 132

Practical Sulphite Cooking*

By Ragnar Monnberg[1]

Shortly after the sulphite process had been successfully developed by Ekman, Mitscherlich and Kellner, certain fundamentals became generally known among the men of the new industry. The pioneers and their collaborators represented the highest type of men and the foremost standards of training in chemistry, forestry and engineering. Under such conditions it is no wonder that the fund of knowledge soon expanded to a remarkable extent. New men, when they advanced with the industry, often found the task of acquiring a fair amount of the available data entirely too cumbersome.

The Early Development of Sulphite Cooking

Hofmann[2] in 1897 gives us a clear picture of the knowledge at the end of the previous century. Mitscherlich[3] was from the beginning aware of the necessity for complete penetration of the wood before the temperature was allowed to pass above 108 deg. C. With the weak acid in use, the chips were usually steamed in the digester before the acid was supplied. The steam drove out the air from the chips and created a vacuum, when it was condensed by the cold acid. Some mills used vacuum pumps to effect the same thing.

Kellner favored faster operation, made possible by his direct cook. The temperature was raised in 1.5 hours to 105 deg. C. The digester was then shut in, usually during 3 hours, in order to complete penetration.[4] The temperature was thereafter rapidly raised to cooking temperature. For slow cooks this temperature was 120 deg. C. and for fast ones 138 deg. C. All authorities placed the beginning of the reaction at 110 deg. C., a point at which the speed of reaction takes on practical significance.

In case we disregard the time required for emptying, the schedule for rapid Kellner cooks in a 7 ton digester was as follows:

A RAPID KELLNER COOK. YEAR 1895

Filling time		10 minutes
Pumping time		20 minutes
Cover on		15 minutes
Steam to 109 deg. C.	1 hour	30 minutes
Penetration	3 hours	
Steam to cooking temperature	1 hour	
Cooking	8 hours	
Final gas	1 hour	
Total	15 hours	15 minutes

* Presented by title at the fall meeting of the Technical Association of the Pulp and Paper Industry, Holyoke, Mass., September 14-16, 1932. Contribution of the TAPPI Acid Pulping Committee.

[1] Member TAPPI, chemical engineer, superintendent of control department, Smooth Rock Fibre Division, Abitibi Power and Paper Company, Ltd., Smooth Rock Falls, Ontario.

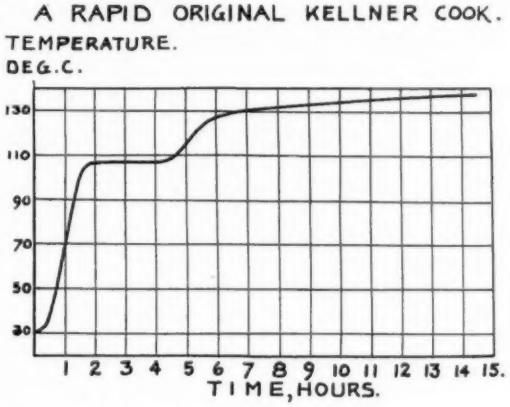

FIG. 1

The total cooking time, from the moment the steam was turned on until the final gas had been drawn off, was 14 hours and 30 minutes.

If we deduct 3 hours of penetration, when the reaction speed is little developed, we have 11 hours and 30 minutes for the operation that the American usually refers to by the term "cooking time."

When we disregard other things and only take into consideration the length of this cycle, we find that the American quick cook shows one main "improvement," namely, the time for penetration is omitted.

Kellner was fully aware of the economies that a shortening of the period for "bringing up to penetration temperature" would give. On the other hand he could not allow himself to neglect the penetration, and thereby shorten the cooking time.

In Fig. 1 is given a representation of the rapid Kellner cook. Those that have the opportunity should compare this curve with flat cooking curves illustrated by Häggland[5] and Miller and Swanson[6] in connection with research work performed in small autoclaves. Such flat curves give very good yields. I can also refer to a previous article[30] by the author.

In the early days it was well known that a stronger acid would facilitate cooking. The cost for sulphur was against the use of very strong acids. A combined between 1.0 and 1.2 was in use. In the beginning, while the acid plants were in a state of development, liquid SO_2 was often resorted to for "building up" of the acid.

Later Development

In Europe the high standards from the pioneering days have been maintained by succeeding generations. In America the leaders have been fully aware of the main principles of the cooking. In the years which preceded the research work recently published by Miller and Swanson,[7] we find evidence that the operators of the mills possessed a considerable fund of information. Witham[8] gives a good survey of the whole paper industry in 1920. Witham gives good advice regarding the cooking. He warns against too rapid steaming. Saturation of the chips must take place before heat is raised over 110 deg. C.[9] A minimum of 2.5 hours to 110 degrees is recommended. He warns against the high temperatures and gives 145 deg. C. as a reliable figure for the blow off temperature.

Miller, to whom the credit belongs of having recognized (however, not for the first time) the difference between temperatures at the point where the steam enters, and the temperature at the point where the thermometer usually is placed,[10] makes, in spite of this, the statement that 1.5 hours to 110 deg. C. is ample time for penetration. The writer has found that normal chips on this continent (green spruce or block pile spruce) also require at least 2.5 hours when uniform temperature prevails. There are always some very wet chips and oversize chips cannot be entirely avoided.

Swanson recommends[11] 2 hours to 110 deg. C. and Cable[12] endorses these findings.

In a previous article I have pointed out the influence of the market on the cooking in general. Recommendations regarding preferable procedures for the penetration should not be loosely made.

It is far from my intention to detract from the importance of the work carried out by the investigators last mentioned. The published part of the work abounds with

valuable data. The recommendation of only 1.5 hours to 110 deg. C. is to be taken as an indication of a possibility. With wood properly seasoned and the size of chips so well controlled that a high degree of uniformity exists it must be possible to follow the recommendation, provided the heat can be added uniformly to the digester by proper arrangements of forced circulation. Whether it is advisable to save one hour depends on economical factors. It costs money to make chips uniform, to season wood and to circulate acid. It does not cost so very much money to have the digester available for 1 hour.

Sulphite Cooks

Since 1921 the writer has made a special study of the sulphite process. Cooks have been carried out in small experimental digesters as well as in various commercial digesters. Experimental cooks in small units are of great interest, however, the results give valuable suggestions regarding cooking in large digesters only when great care is taken in interpreting the data.

The following generalizations describe certain observations which can be made on small digesters.

When small chips are used no penetration time is necessary. Wet river wood, in form of "saw-dust," i. e., the fraction of refuse that passes a ¼-inch screen but is held on a $\frac{3}{16}$-inch screen, cooks readily. The oil bath can be heated to a temperature so calculated that the digester is rapidly heated to 110 deg. C. by the law of calorific mixing when the digester is placed into the oil. The inside temperature reaches 110 deg. C. within 15 minutes. The cook can be completed in about 8 hours time at 135 deg. C. The pulp is as strong (Mullen and Elmendorf) as many samples of commercial pulp and about 25 per cent weaker than fiber made from good chips in the same small digester.

When freshly made industrial chips of mixed dryness are used a comparatively long penetration time is needed. Curves like the one given in Fig 2 give good results with an acid of 5.50 per cent total SO_2. On this continent industrial chips are nearly always in this class. A great percentage of the chips are so wet that they sink. I am indebted to Mr. E. Erickson, formerly of the Abitibi Fibre Company, for a suggestion to carry out sinkage determinations. A great number of tests have been made. In commercial operation the sinkage percentage varies from 0 for handpeeled seasoned wood up to 25 and 30 per cent for river wood. The sinkage percentage shows astonishing variations at a practically constant moisture test of 43 per cent. The wet chips do not absorb the acid as rapidly as the dry chips. Oversize chips (over ¾ inch) contribute more to screenings than the sinking fraction of chips.

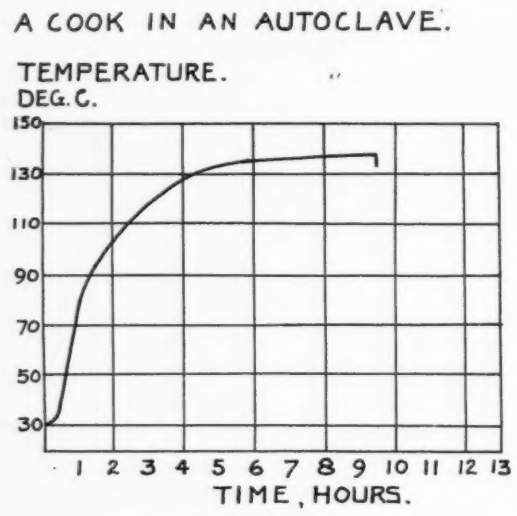

Fig. 2

The pulp obtained in a certain cooking time from cooks made with a flat temperature curve, such as reproduced in Fig. 2, is practically identical with the pulp produced according to curves that proceed with comparatively large, even increments (Miller & Swanson recommended such curves) between 110 deg. C. and a comparatively high blow temperature.[30]

Hofmann shows that Kellner made efforts to shorten the initial heating period. The curve in Fig. 1 was one of Kellner's cooks. In order to save 1.5 hours, Kellner proposed to heat the acid in advance. Hofmann describes a vessel with a heating coil. Into this pressure vessel Kellner proposed to lead the relief gases from digesters. The reader will probably recognize a similarity with the modern Chemipulp System.

The History of Hot Acid Systems

The first indication of a pressure vessel to be used as a receptacle for relief gases, is found in Kellner's "acid heater." The purpose of this apparatus was to secure preheated acid for the penetration period. The recovery of gas relief into this vessel, thereby preserving some heat, was only a secondary object.

The next time we see a reference to a heat recovery unit is in connection with a patent by Adolphe Suelzer in France. The patent refers to a system similar to the Decker system. The leading of relief from one digester into another requires careful spacing of the cooks. The inventor therefore mentions an auxiliary pressure vessel, to be used when no digester is in condition to receive the gas relief. A lead lined boiler is suggested. Hofmann[13] mentions that this system had been in operation for one and one half years in 1894 and 1895. It is expressly stated that the pressure vessel should receive the hot gases into a large volume of acid and thereby make preheating of the acid possible.

In the patent by Drewsen and Bache-Wiig, we also find an interesting heat recovery system, U. S. Patent 492,196.[14] The relief gases were to be conducted without any cooling into acid tanks. The tanks were not built to stand pressure. It was claimed that an acid of 5.40 per cent total SO_2 could safely be heated to 60 deg. C.

Schwalbe[15] discusses the heat recovery problem in 1911.

In 1916 a German expert on heat in the sulphite industry, von Lassberg[16], devotes a chapter to the discussion of the recovery of the heat contained in digester relief. It is stated that the proposal of conducting the relief gases into the acid, with the object of preheating this, has gained more and more support.

In 1920 Waldhof[17] in Germany secured a patent on acid and heat recovery systems, (D. R. P. 361,055, Kl 55b). This is the fundamental patent for the present day development of heat recovery systems. The inventors are Mr. Carl Hangleiter and Dr. Hans Clemm.

In regard to this claim Dr. Klein has stated that Forshaga and Kyrkebyn Mills in Sweden had used such heat recovery systems during several years.[18]

In 1924 and 1925 Sieber[19] discussed the heat recovery problem. Sieber states that the claim, on which the heating of acid in open tanks to 70 deg. C. is based, is incorrect. The gas will leave the acid. Pressure vessels are required in case such high temperatures are desired.

In 1925 Enckell[20] gives definite proof regarding the temperature at which the gas will leave the acid. For the

usual cooking acid this is 40 deg. C. at atmospheric pressure.

It is claimed that the development of the present American Chemipulp system had its inception in 1923.[21]

I take it for granted that the reader is familiar with the development of the American Chemipulp system. However, I refer to a paper by Merrill[22] presented in April 1929.

The heat recovery system, in its fully developed form, the Chemipulp system, offers the best means of securing the preheated acid that Kellner had already found so desirable.

In this manner it becomes possible for the operator of large digesters to proceed to higher temperatures in a reasonable time. It is also possible to introduce the necessary quantity of steam without the danger of adding an excess to the central part of the bottom cone. The digester operators are, however, used to their valves and their temperature curves. They will rush along and forfeit all the advantages by heating over 110 deg. C. entirely too fast. They might also stick to the "even increment curve" (called "Type A" in a paper recently published by the author).[30]

Steaming of Large Digesters

The type of digester here considered is the standard American digester. There are of course variations in the relation between diameter and height of the digester as well as in other details, but such small variations are here overlooked.

First of all I will consider the conditions when a single steam inlet exists at the bottom.

As soon as the steam is turned on, a certain part of the acid in the cone is heated. This acid, aided by the impact of steam as well as by its lightness, begins to rise. This motion upwards necessitates motion downwards somewhere. Successful steaming must overcome the inertia of the total mass of acid in the digester. The acid must be put into motion gradually as a heavy train is put into motion. There is from the beginning a motion upwards in a central cylinder and a somewhat slower motion downwards in a surrounding cylinder of greater section area. (Fig. 3 and Fig. 4). Lassberg gives an illustration similar to Fig. 3 in the 1916 and 1923 editions of his book on heat in sulphite mills. Fig. 4 illustrates conditions, which are set up by too sudden supply of steam. A local bottom circulation is created. (In the simile the engine runs against the first car in the train with such speed that this car is smashed and the rest of the train remains at rest).

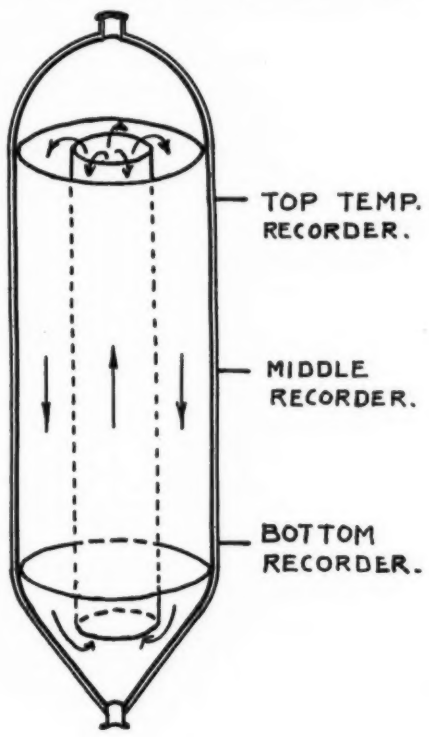

FIG. 3

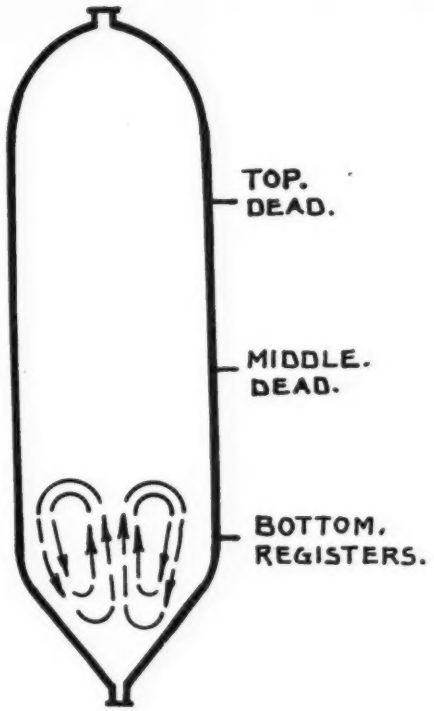

FIG. 4

Are these claims proven?

I referred to Lassberg. He had no proof, other than theoretical, and suggested experiments. Mitchell[23] has recently, in a discussion regarding the necessity for forced circulation, given a good account of the conditions in a digester steamed in the usual way.

The following might serve as additional proof.

When the digesters are provided with 2 or 3 thermometers as indicated in Fig. 3 (top, middle and bottom), we have the following relations for normal cooks.

TIME IN HOURS FROM BEGINNING OF STEAMING TO THE MOMENT WHEN HEAT ARRIVES TO RESPECTIVE THERMOMETER

	Size of Digester						
	15 Tons, Canada		21 Tons, Finland		30 Tons, Canada		
Steaming	Top	Bottom	Between Top & Middle	Bottom	Top	Middle	Bottom
Very slow.....	1	2½	1	3	2½	..	5
Slow	...	...	¾	2	2	3	4
Fast	½	1½	...	..	1½	..	3

The terms slow and fast steaming can be defined. The time required for the admission of the B. t. u. corresponding to a rise of temperature up to 100 deg. C. can be given. The hourly or half hourly supply in per cent of this B. t. u.

figure can also be given. This would be ideal in case a 30 ton digester could be heated evenly to 100 deg. C. This is not possible unless a circulating system is used. In order to avoid complications the writer will leave the terms as they are.

In Europe it has long been the custom to have several thermometers.The writer worked in a mill in 1923 and made studies of the temperatures and the circulation. Reference can also be made to Sieber [24] in 1924 and 1925. In the U. S. A. double records (head and side) were quite common. In the literature Allen [25] presents curves in 1920.

The heat cannot be conducted in the manner demonstrated in the table by means of small convection currents alone. There must be a dominating motion of the acid. The phenomenon is so regular, that, when the digester and the type of wood are known, details on the temperature chart can be computed in advance.

It has been claimed by Kreissler [26] that in normal filling the chips pack tighter in the central part of the digester. The chips are loosely packed along the sides. In my opinion this condition leads to an extra resistance for the acid trickling upwards in the central cylinder, and a slight aid to the acid going down along the sides. There is always a tendency for a faster movement upwards. When the chips are loose close to the shell, there is a tendency to equalization of the speeds of movement upwards and downwards. This leads to the result that the central cylinder becomes considerably wider than it would become, in case the chips were uniformly distributed. When the Fresk Filler is in use the chips are packed uniformly and it is also claimed that they are laid down flat. The motion in general and particularly the motion downwards is now handicapped. The inside cylinder becomes narrower and the surrounding cylinder wider than usual. This is obvious as the same volume of acid moves rapidly upwards, but slowly downwards.

In reality, actual facts prove the correctness of these deliberations. With Fresk filling, when steaming is made so that the top thermometer indicates arrival of heat in 1¾ hours instead of 2 hours for normal filling, we find that the bottom thermometer registers arrival of heat in 4¾ or 5 hours instead of 4 hours. A larger part of the digester is delayed more than usual. The stock is, as a result of this, raw and full of chips.

When the Chemipulp system is used, the acid moves easier, probably due to lower viscosity. The heat arrives to the top of a 30 ton digester in 1.5 hours and to the bottom thermometer in 3 hours for rates of steaming that are lower than those for normal cold acid cooking when the respective figures are 2 hours and 4 hours.

Sometimes, when ordinary filling is used and the steam is turned on very carelessly, it happens that the bottom temperature gradually and very rapidly rises. This is explained by the assumption of local bottom circulation such as is illustrated in Fig. 4. As soon as the heat in the bottom creates a difference in weight sufficient to overcome the inertia of the total mass of acid, the heated acid will suddenly find its way upwards through the central part of the digester. The cold acid must then in the same instant move very rapidly down along the inside of the shell. The bottom thermometer must register a sudden drop to cold acid temperature. The actual facts corroborate this reasoning. The rest of such a cook is a normal cook.

When the Fresk is used in combination with the Chemipulp system on a 30 ton digester and dry wood (hand-peeled wood, 20 per cent moisture) is resorted to, the temperature curves become very erratic. Naturally such experiments have been made to comply with European practice. The unsatisfactory results with the Fresk system and wet wood do not prove that the system always creates difficulties. The erratic curves obtained with dry wood increase the difficulties in connection with control of the quality of the pulp. I presume that the chips lie flat in the digester as the sponsors of the Fresk System claim. The extra resistance that the chips give when they lie flat is considerable and the flat surfaces tend to prevent the acid from rising right to the top of the digester. Local convection currents are a result. In some cooks the bottom temperature recorder might register a rapid increase in heat. This is again explained by reference to Fig. 4. After a while the heat rises as described above and the bottom temperature drops to cold acid temperature. The heat arrives to the top recorder. The normal circulation does not prevail for a long time. The acid rising in the central part is too much deviated to the sides. The top again remains outside of the main circulation. The acid moves down somewhere at the middle temperature recorder. This thermometer alone runs up fast. After awhile this heat arrives to the bottom recorder. Now we have a circulation such as in Fig. 4, only more developed, so that the level at which the acid bends downwards is higher up. This condition lasts until the middle thermometer and the bottom thermometer have reached high temperatures, while the top thermometer indicates a comparatively cold acid. The necessary driving force is now present and all the hot acid begins to move right to the top. This is seen on the thermometers. The middle thermometer falls rapidly. After awhile the bottom temperature also drops. Somewhat later the top temperature begins to rise. The whole liquor quantity participates in the circulation. Fig. 3 applies. In this manner the partial circulation might alternate with complete circulation and interesting studies of the temperatures can be made.

I will return to normal filling and give a few more observations regarding the circulation.

In case a 30 ton digester is "shut in" at a moment when considerable amounts of heat have arrived at the top, or even later on, no equalization of heat will take place. During 6 hours or more the heat will remain distributed in the same manner as it was, when the circulation died out about a quarter of an hour after shutting in. This will probably come as a surprise to those that practice "shutting in" as a means of equalizing the heat distribution.

"Shutting in" can, however, be defended, when the acid is so hot that considerable gas relief can be taken. It is a well known fact that the ebullition aids the circulation.

There is also addition proof worth mentioning in regard to circulation. When good thermometers are available, the movement of cold acid down along the surrounding cylinder (Fig. 3) can be seen by slight variations in the temperature at all thermometers, before the heat suddenly arrives. The temperatures chase up and down with a few degrees amplitude.

Steam Addition

In case we take for granted that the above holds true, it is apparent, that the time required for the arrival of heat to the bottom thermometer serves as a measure of the time for the first revolution of the acid.

Unless the Chemipulp system is used, the bulk of the heat admitted to the digester is needed to bring the digester up to 110 deg. C.

The quantity of steam required to raise the temperature to any desired point can of course be readily calculated.

It might be desired to produce a uniform temperature in the digester for penetration. In this case the theoretical heat quantity required for heating the digester to 100 or 105 deg. C. is expressed in pounds of steam. Or, it might

be desired to proceed directly to cooking temperature. Also in this case the theoretical quantity of steam is computed.

It is now apparent that the computed quantities of steam must be added in such a manner that the steaming harmonizes with the circulation it creates. The steam for bringing the digester up to a desired temperature must be added exactly as if a given quantity of paint were to be sprayed in a uniform layer onto a rotating wheel.

The liquor in a 30 ton digester rotates only once in 4 hours. The liquor in small digesters makes several revolutions in the same time. The task of steaming is therefore much easier, when a small digester is handled.

If an even temperature for penetration could be produced it would appear wise to shut in the digester for an hour or two according to the original Kellner practice. Without forced circulation such a condition can be secured only in small digesters. Even when it can be secured time is lost. Economical conditions determine the course that must be taken. Screenings are however avoided by this means. This was the practice in the mill where the writer first worked. A 30 ton digester can in the best case be heated so that uniform temperature prevails at 125 or 130 deg. C. From this moment onwards the temperature should be dragged along. The steam during the real cooking period must be kept practically shut off.

When the Chemipulp system is used, there is the advantage of uniformly warm acid from the beginning. It is natural also in this case that the steam must be added in a well calculated period at a well calculated rate. Otherwise there will be no harmony. The steaming rate is much lower than for ordinary cooks in spite of the fact that the period must be made shorter.

In digesters, where the steam enters at only one place in the bottom fitting, the danger of overheating must be taken into consideration.

The writer has experimented with very rapid steaming on a 30 ton digester. As pointed out, the rate of circulation is a function of the rate of steaming. In case the operator is familiar with the digester, he can compute the maximum amount of steam, which can be admitted in any given moment without any theoretical overheating exceeding 105 deg. C. at the point where the steam enters. Such computations have failed to give proper results. The bottom of a digester is a cone of given angle and the lower part of this cone is the same for a big and a small digester. The steam inlet is situated at the apex of the cone. The acid in the digester might be moving according to belief

A LONG COOK. IMPROPERLY STEAMED.

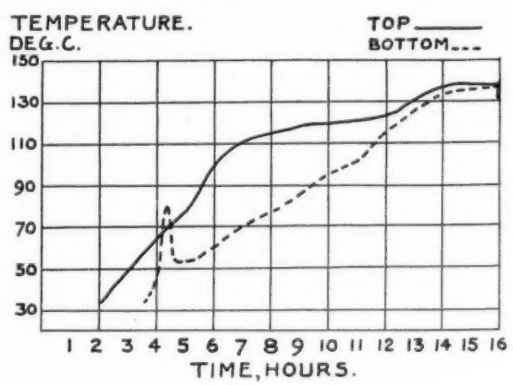

FIG. 5

A SHORT COOK. IMPROPERLY STEAMED.

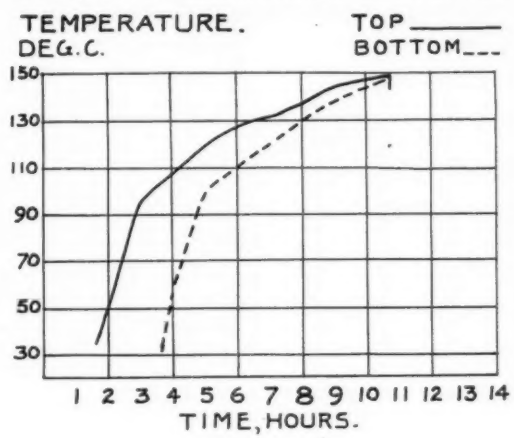

FIG. 6

but the total mass of the acid passing the bottom certainly does not enter the lowest part of the cone. Although cold acid, at any given moment, arrives to the bottom in such a volume that the steam cannot theoretically overheat it, the steam will get an immediate chance to heat only part of this volume. By mixing later on, the theoretical condition is fulfilled, but the damage is already done. The only way to find out the maximum rate of steam that can be applied is by actual trial.

You have a temperature curve, which gives very good results on a 15 ton digester. This curve cannot be applied to a 30 ton digester. First of all no heat will arrive to your recorder during the greater part of the steaming period. This is due to the additional lag, which in turn is a result of the additional road that the heat must travel. It has been explained above that you cannot throw in double the quantity of steam into the same kind of a bottom. You must adopt an entirely different method of cooking. However, you can follow the same general principles.

A 30 ton digester is steamed as follows. Assume that experiments have shown the circulating rate as a function of the steaming rate. Experiments have also indicated the proper "stepping up" method, i. e., the manner in which the steam must be gradually admitted to avoid local bottom circulation and local overheating. You now select such a rate for the main period of steaming that all of the steam you desire to put in has been admitted in the same time as the cycle of circulation requires. For instance, experiments show that rapid "stepping up" gives a rate of circulation that requires 3 hours per revolution. You maintain an average rate of steam during 3 hours so chosen that the B. t. u. added theoretically raises the whole digester to 128 degrees. When the cook has been completed there are distinct signs of overheated chips in a raw condition. You select a slower "stepping up" method. Finally you find for instance, that a "stepping up" which gives satisfactory bottom conditions leads to a 4 hour cycle for the circulation. Nearly all the steam that you intend to add must be admitted in a single 4 hour block. The steam must be checked off in the proper manner, and it is good to shut in gradually to allow for the gradual "step up," so that the acid that was heated at a low rate of steaming in the beginning is given additional heat. During the rest of the cook you admit so little stream that it does not enter into the calculation.

The resulting temperature curve necessarily becomes a

flat curve (similar to "Type B") [30]. The reader now understands the importance of the controversy outlined in a previous paper. The flat temperature is not chosen because this bend or that increment is thought to be the "hocus-pocus", which leads to a good yield of a strong pulp. The temperature curve simply is a result of the manner in which the steam *must* be admitted in case uniform heating is desired.

An even increment in temperature from 110 deg. C., at say 4 hours, would force you to check off the steam earlier, in order to avoid running up too suddenly over 110 deg. C. at the top recorder. Your main block of steam will probably be only of two hours duration. Hereafter the temperature must rise evenly. This means that you must admit steam to the end of the cook. There is no harmony between circulation and steaming. Practical experience during several years with nearly 2000 cooks per year and complete tests on every cook prove that the stock is unevenly cooked.

These theoretical reasons in combination with the practical experience the writer possessed, all contributed to the conclusion that "the even increment curve" ("Type A" [30]) recommended by Miller, or in other words the curve according to American general practice, was the cause of all the difficulties on large digesters not provided with forced circulation.

Practical Application

The system of steaming a 30 ton digester in harmony with circulation was tried by the writer in a series of cooks in Aug. 1930. The experiments were not quite successful, as experience regarding the stepping up period was insufficient. In these cooks the amount of steam admitted during the latter part of the cook was very small. Experience has shown that even this was too much. The steam must be practically shut off.

Since Nov., 1930, remarkable results have been obtained. (Mr. H. M. Halvorsen, mill superintendent, is responsible for the successful practical application). Blockpile wood and green wood have been cooked with good success. The strength and bleachability have been determined for every cook. Bleachability is determined on the screened blow pit stock as well as on the stock passing through the bleach plant. The strength is determined by various methods on every cook and on every car of bleached or unbleached pulp. Mullen, Elmendorf and fold are considered.

As soon as we want inferior stock we follow the curve which represents even increments between 110 deg. C. and

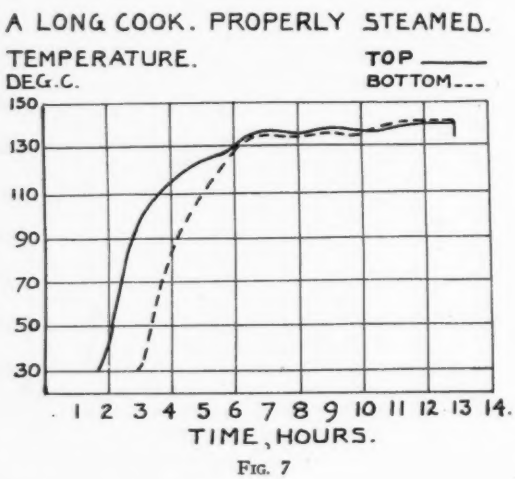

FIG. 7

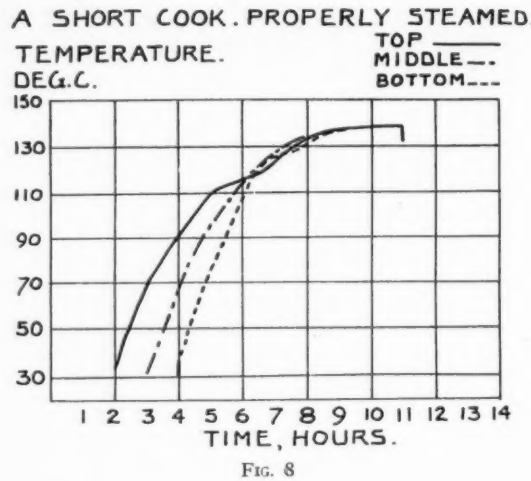

FIG. 8

the blow temperature. By this curve you have a tendency to obtain raw, hard pulp. You can of course produce easier bleaching pulp. The strength is then low.

To sum up we can state that our experience bears out the ideas that have been given regarding the application of flat temperature curves and steaming in harmony with circulation.

It is natural that some operators will resist the introduction of such cooks. It is argued that the liquor will turn black very suddenly, etc. In the literature we find theoretical reasons against such practice. It is said that stagnant liquor will not rapidly dissolve the lignin and that steam should be admitted in order to aid movement and diffusion.

The facts are against such arguments. The method produces a very uniform stock. The product is similar to pulp produced with the aid of circulating systems. Screenings can be kept around 3 per cent when satisfactory wood is used. Consequently there must be sufficient motion due to the relief and gas ebullition.

When the principles of cooking by steaming in harmony with the circulation are properly applied, dry wood (hand-peeled) gives excellent pulp. In a 30 ton digester long or short cooks can be made. When the steaming is carried out improperly, curves such as given in Figs. 5 and 6 are obtained. When cooks of the same cooking times are properly steamed, the temperature curves are as in Figs. 7 and 8.

Digesters are often provided with many inlets for steam around the cone. Very often this tends to cause a circulation against the main circulation. The liquor cannot rise everywhere. The digester is then heated by small convection currents. The heat is probably transmitted upwards through the whole section. The heat sometimes arrives first to the bottom thermometer. Sometimes the injectors are so located and so shaped that normal circulation takes place. The writer has seen great erratic variations from cook to cook. On 15 ton digesters the system has given good service, where it has been properly handled.

The heating of digesters according to various curves with definite increments between 110 deg. C. and the blow by the supply of well calculated rates of steam was discussed in an interesting article by Allen [27], published in 1920. In this case the steam was added automatically. Considerable quantities of steam were added to the very end of the cook.

The writer has attempted the application of steam according to a predetermined steam curve. During long

periods the wood varies so little that the digester functions as a large calorimeter. The temperature curves are duplicated exactly as long as the steam curve is duplicated. The circulation is always the same. The temperature curves run through a series of predetermined points. In between there are fluctuations. These fluctuations are only minor erratic details. In case the cook operates according to temperature alone he pays attention to these small deviations. His corrective measures will bring the temperature curve away into an entirely new track. Personally I believe more in systematic calculated effort than in such freedom to hit and miss. When the wood changes, it is up to the superintendent to work out new instructions.

The reader has probably noticed the secret of the industrial temperature curves. When a superintendent draws a curve he gives indirectly steaming instuctions. The temperature chart forces the cook to make an effort to follow the line. This can be done only by changing gas or steam. By drawing gas or shutting off gas the top temperature (the superintendent usually pays attention to the recorder at this point) recorder can be made to register the desired artificial bend. This bend then has no reference to the condition in the digester. In case there is a predetermined system of taking relief, the cook must produce the curve and the details of the curve by controlling the steam. Experimenting with temperature curves therefore is juggling with the steam.

There are, of course, some temperature curves, which forces the cook to add steam, so that uniform heating results. In other words, so that harmony results. When such a temperature curve is found for a certain digester and a certain type of wood, it is considered a remarkably fine thing, although nobody knows the cause.

A slight change to the curve will force the cook to shut off steam somewhere or to add steam at some other point. The "concave" curves are curves with steam at the end of the cook. They give the poorest results as a rule. They might also represent moderate steaming just before the final heavy gas is drawn. The heat which is on the road upwards is drawn up when the gas is taken, and the sudden rise in temperature at the end of the cook is thereby recorded by the top temperature recorder. Experimental cooks can never be used to give a guide regarding these industrial curves, when the usual method of handling and studying such curves prevails.

When cooking curves are changed, relief will change. Acid will gradually change. After 20 cooks the effect is seen. In the meantime, while the acid is gradually robbed from cook to cook, the same curve will produce a series of cooks. The first cook might be excellent. The last one might be the worst the mill ever experienced. This much about the old way of juggling and studying temperature curves.

While this article has been in preparation a paper by W. H. Swanson [28] and collaborators has appeared. It is interesting to note that Swanson, after the introduction of forced circulation and indirect steaming, has adopted a flat curve very similar to early European curves (Fig. 1). I remember that about a year ago we received a pamphlet from the G. D. Jenssen Company regarding the Brobeck System. In this pamphlet such curves were illustrated. The current European literature [29] refers to such curves in connection with "rational cooking."

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New Amthor Hand Tachometer

A new portable tachometer for testing rpm. machine speeds has just been put out by the Amthor Testing Instrument Company, Inc., 309 Johnson street, Brooklyn, N. Y. This is their Type 350 illustrated herewith, of which the most important feature is the automatic fixed reading device, whereby speed readings are automatically fixed on the dial after each time the instrument is used. When applied to a revolving shaft or to a moving surface the pointer instantly points to the speed, but when taken away the pointer remains fixed at the exact reading on the dial. With this feature it is not necessary to keep the eyes focussed on the dial and the instrument can be used in the dark if necessary, or in inaccessible places where it is awkward to hold and read at the same time. It facilitates testing and checking rpm. speeds of turbines, engines, centrifugals, shafts, and feet per minute surface speeds of paper, wire, felt of paper machines.

The dial is graduated directly in rpm. but accessories are provided so that all "feet per minute" surface and belt speeds can be taken. The instrument has four-speed ranges, each of which is separately read over the entire circumference of the dial, thereby giving actually four times the graduation space on the same dial, and consequently closer readings. Each is constructed with a finely balanced cross-pendulum governor movement, is hand calibrated for accuracy, and dead beat in action.

The Story of Glue

The National Association of Glue Manufacturers, 35 W. 42nd street, New York, has just issued a very interesting booklet entitled "The Story of Animal Glue."

This booklet tells briefly the things about glue that are of general interest to the industry—the history of glue, its manufacture, grading, preparation and application. It is said to be the first complete, non-technical outline of glue that has been prepared and contains much information which will be of value to anyone connected with a glue using industry.

Roll Coaters vs. Brush Coaters *

By Frank W. Egan[1]

As the title would indicate, this paper deals with the advantages obtained in the operation of a roll coater in place of the brush coater for coating papers with clay coatings.

Of late this subject has been of great interest to men in the coated paper industry. A great deal of thought and time has been given to the development of roll coaters.

For years coated paper manufacturers have desired to obtain a coating machine which would apply coating to paper without the use of brushes, and thereby, get away from all the troubles which brush coaters are heir to. Some coated paper manufacturers have developed roll coaters and have found that the roll coaters has distinctive advantages over the brush coater.

In order to make a direct comparison between a brush coater and a roll coater, let us first briefly review the history of the brush coating machine.

Before the day of the brush coater, clay coatings were supplied by the hand brush method. This necessitated a machine which would apply the coating uniformly and in 1852, as near as we can find out, the first coating machine to be operated in this country was built for the Louis De Jonge Company by the John Waldron Corporation. It was nothing more than a wooden frame on which brushes were mounted and operated from iron eccentric arms.

The first coating machine was a flat bed arrangement; then came the cylinder coater. It was a machine with a cylinder having brushes nested around the cylinder. A distinct advantage of the cylinder coater was that the paper laid so well on the surface of the cylinder that it prevented wrinkling, thereby producing a good coating, but it had the disadvantage that you could only use a limited number of brushes.

This led to the inclined bed coater, for, on it a good many brushes could be used, but it had the disadvantage that the paper did not lay on the incline bed as well as it did on the cylinder coater.

The arched bed machine was then developed which had all the good advantages of the inclined bed machine and the cylinder coating machine. The paper laid well on the arched bed and the required number of brushes could be used. Today the best type of brush coating machine used is the arched bed.

Arched Bed Coating Machine

The unroll stand is a double unit arranged for two rolls of paper, the running roll and the make ready roll, so that flying pasters can be made. The pasters are made from roll to roll without shutting the machine down at high speed. The unroll stand is equipped with an automatic tensioning device, consisting of float roll held in balance with a weight on an arm, this arm operating the tension band that is geared to the unroll shaft. This provides for an automatic uniform tension regardless of the diameter of the roll of paper. This is an important feature for maintaining uniform coating, and eliminates paper breaks due to increased tension as the roll of paper decreases in size. Additional tensioning rolls are built in the under section of the frames behind the coating head roll so that most of the tension is applied close to the point where the coating is applied.

On the coating head we find that the coating pan roll is driven from a separate variable speed drive so as to regulate the amount of coating brought up to the round cylinder brush.The cylinder brush has a gear driven arrangement geared to the coating head roll, which in turn is driven from the front blanket roll, and the front blanket roll is driven by the rubber blanket, which is driven from the main drive at the back of the machine. This also provides for a more uniform weight of coating. The coating pan is equipped with several inlets for the coating to enter. An overflow maintains a uniform level in the pan. An agitator is positioned in the pan and is driven so as to keep the coating mixture in solution. The coating pan is shallow so that very little coating is in the pan at one time. The coating is pumped into the pan and passes out the overflow back into the holding tank, where it is agitated and then pumped back into the pan.

On the coating head roll, one, and sometimes two brushes are used. Some mills prefer a stationary brush so as to prevent coating being brushed on the under side of the paper. In other mills they say these brushes should be driven so as to get a good brush out as soon as the coating is applied to the paper. Rubber wipers are used on the coating head roll to eliminate as much as possible the tendency of the coating going around on the back of the paper.

On some coating machines a driven smoothing roll is positioned just ahead of the coating head roll. This roll has two functions; one, to smooth the coating, and two, to press the paper down onto the rubber blanket as it passes under the brushes, thereby helping to eliminate any tendency of air being entrained between the rubber blanket and the web of paper. The roll can also be used to control any undercurl due to a slack edge.

* Presented by title at the fall meeting of the Technical Association of the Pulp and Paper Industry, Holyoke, Mass., September 14-16, 1932.
Contribution of the TAPPI Coating Committee.

[1] Member TAPPI, engineer, J. O. Ross Engineering Corporation, New York, N. Y.

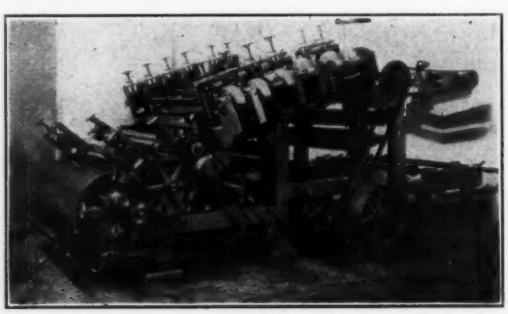


FIG. 1.
Arched Bed Coating Machine.

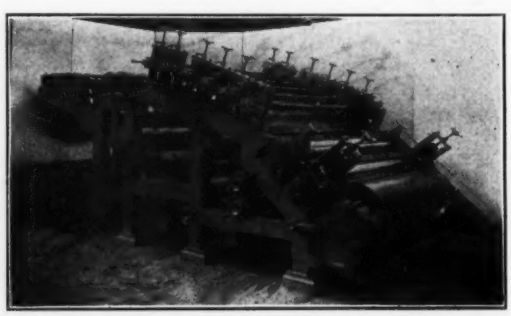


FIG. 2.
Arched Bed Coating Machine.

The arched bed is built of brass supported on a substructure that can be dropped so the paper comes away from the brushes a distance of ¾ inch. This permits easy threading.

The machine throughout is equipped with ball bearings mounted in a housing, which is dirt proof and equipped with Zerk type lubricating fittings. The brush sections are nested in groups of two and balanced. The eccentrics are fitted with ball bearings ruggedly constructed and have swing joints for a straight line motion. The brush rod holders are built up of large square sections and are supported in "V" type bearings so that any wear in the bearing can be taken up easily.

The connecting rods from the eccentrics to the brush rod holders are carried well into the holder, thereby eliminating any tendency of a brush to leave the bed on the driving side. The brush rod holders are fitted with cushion stops for dampening the thrust. The speed of the brushes should be regulated with the relative speed of the paper so that a maximum interlacing of brushing strokes are obtained. This can be carefully checked if pencils are placed in each brush rod holder and paper threaded through the machine and the pencil markings check for the proper interweave.

The suction attachment is mounted on the back of the machine with rolls supported in ball bearings and a perforated suction apron is driven from the back roll so that the apron is pulled over the suction attachment. This is similar to the drive arrangement of the rubber apron on the arched bed. In pulling the rubber aprons wrinkling of the apron is overcome which is sometimes caused when blankets are pushed over the bed where the drive is on the front rolls. The machine is heavily constructed throughout and a separate variable speed drive is built into the machine for controlling the speeds of the brush units.

Disadvantages of Brush Coater

Now we will take up the disadvantages of the brush coater. It is true that the brush coater also has advantages and we do not believe it will be entirely displaced by the roll coater, but the objections to it are: That is leaves brush marks on the paper. The brushes disturb the paper fibres, for, in the scrubbing action the fibres are brushed from side to side and the color is brushed against these fibres and in doing so, you have the same effect as if you were hand brushing a surface and one of the hairs in the brush came out and you brushed the color or paint against the side of the hair. In other words, it helps to make a mottled sheet. Some raw stocks have a mottled appearance when you hold them up to the light and look through

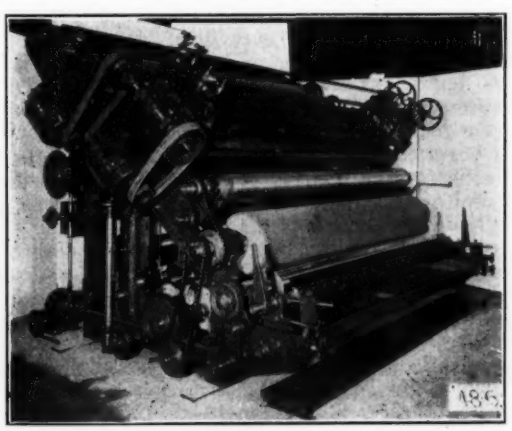


FIG. 3.
Roll Coater.

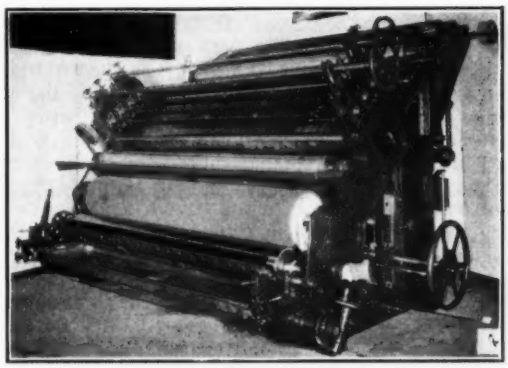


FIG. 4.
Roll Coater.

them and this mottled appearance can be added to through the use of brushes having long strokes. Coating dried on the tips of the bristles will also mark the paper and markings will also occur if the brushes are set down too hard.

Another disadvantage is that the brushing action has a tendency to brush the coating into the sheet instead of letting it remain on the surface. In disturbing the fibres it is also necessary to apply more coating to properly cover the sheet for you have to cover up the disturbed fibers. Another objection is that coating dries on the bottom of the brushes and comes off in small lumps and passes on to the surface of the paper.

We will now consider the cylinder brush with which the color is applied. The cylinder brush applies the coating in spots and moisture from the coating is absorbed by the paper. This coating then has to be brushed out so as to distribute it over the surface of the paper. This means you have coating with less moisture being distributed over a portion of the paper, and this in itself does not give a uniform coated surface, and further, it develops what is termed, cockling. On some coating machines they use a felt roll or a felt blanket for applying the coating. This, of course, eliminates this trouble but it engenders another difficulty and that is, it has been found that the felt covered roll and the felt blanket are difficult to keep clean. Another disadvantage is that the stock of the cylinder brush warps and the bristles wear, thereby producing uniform coating.

Roll Coater

The unroll stand will be of the same construction as on the brush coating machine. The paper is led into the roll coater and is passed over a fountain roll; at this point the coating is applied all over the sheet at one time in an excess amount. The coating pan is shallow and is fitted with three compartments. The coating is pumped into the first compartment in several places and it passes over and into the second compartment in which the coating roll is positioned. The coating roll, in revolving, picks up the coating and the excess coating passes into the third compartment, where it is returned to the holding tank and agitated and then pumped back into the first compartment. The coated paper then passes around a rubber covered roll located in the front of the machine. At this point a reverse roll coating attachment removes the coating from the surface of the paper and reapplies the desired amount of coating through the means of a chilled iron roll, which is brought in contact with the face of the coated paper and driven in the opposite direction. The coating leaves the surface of the paper and passes around this roll.

A second roll, or doctor roll, set at a predetermined dis-

tance from the first roll, takes off the excess coating. This coating drops into a coating pan and is carried back to the holding tank mentioned above. The doctor roll also operates in the reverse direction to the travel of the paper, the same as the first roll, or transfer roll. A flexible doctor contacts the face of the doctor roll and removes the coating from this roll so that the doctor roll presents a clean face. All coating materials when applied to the surface of paper by means of a roll have a tendency to rope, or ridge, or, as they say in Canada, bead. The doctor roll, when run at the proper speed, overcomes this ridging so that the coating, as it passes over the top of the transfer roll, is smoothed and it is then flowed, so to speak, on to the surface of the paper.

The speed ratio between the transfer roll and the rubber covered backing roll (which is the same as the paper speed) is such that the coating applied has the same result as if you took an elastic band and stretched it out so that you could see the defects in the rubber; then let it contract and the defects disappear. In other words, the coating is applied very thin on the surface of the transfer roll and the speed ratio closes up this coating on the surface of the paper.

This method of applying coating is a distinct advantage over the cylinder brush method, for the paper is first uniformly conditioned by the coating on the fountain roll and the coating is then entirely removed from the surface of the paper and is measured by the doctor roll and laid on the surface of the paper in a uniform coat by the transfer roll. Compare this method of applying the coating to the surface of the paper with the spotty application of the cylinder brush method.

Two blending brushes are used on the roll coater to take care of the wide variance in paper stock and in the coating that is found in different coating mills. Where paper stock and color can be controlled the brushes are not needed, but this means that the paper must run uniformly correct in every respect and the coating must be free from all foreign matter, or lumps. For the application of lacquers and other clear coatings brushes are not needed.

With regard to the brushes, the brush units are nested in groups of two and balanced and are equipped with quick lifting rig so the brushes can be changed without shutting down the coating machine. Usually two sets of brushes are used on a machine so that one set can be in operation while the other set is being cleaned.

The brush rod holders are made up of large square sections and are fitted with "V" type bearings. Cushion stops are provided on the brush rod holders for dampening the thrust. Individual motor drives are built into the machine for each pair of brushes. Eccentrics are heavily constructed, equipped with ball bearings and swing joints for straight line motion.

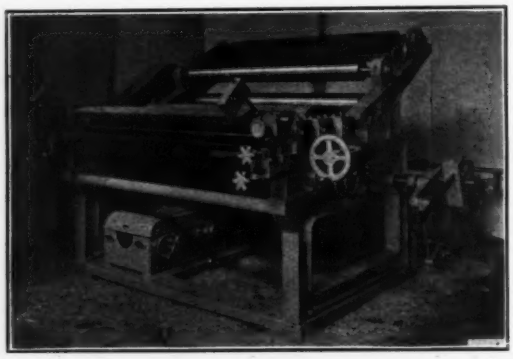


FIG. 5.
Roll Coating Machine for applying lacquer coatings, latex coatings and many other coatings which can be applied by roll application.

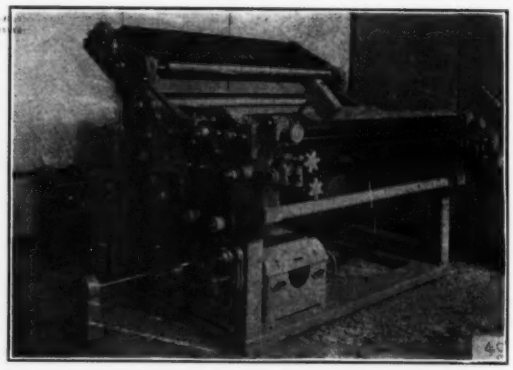


FIG. 6.
Roll Coating Machine.

The brushes are operated with short strokes at a speed of from 500 to 700 r.p.m., on the eccentric shaft. This is a great deal higher than on the arched bed brush coaters where the eccentric shaft has an r.p.m. of about 300. With such a high speed on the brushes you can readily see that all that is needed is just a quivver of the hair tips of the badger brush on the coated surface.

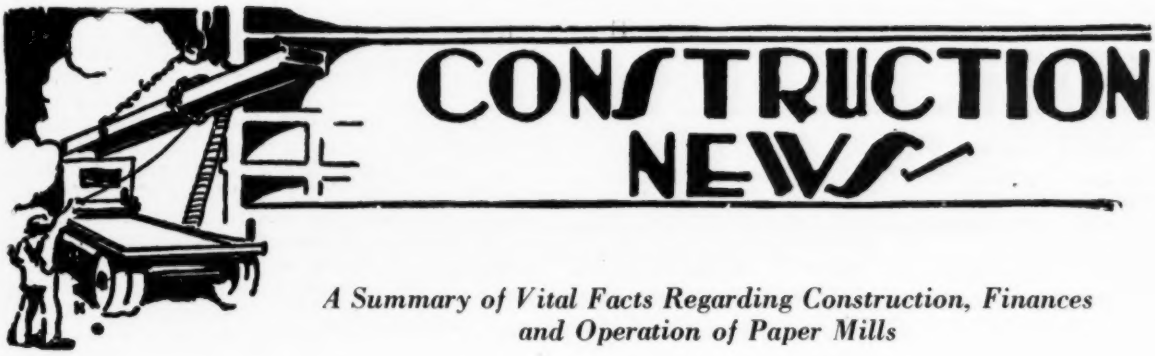
The machine frame is heavily constructed so as to permit the coater to run at high speeds, at the same time producing better quality coatings. Years ago, getting the coating on the paper was the main thing; little thought was given to the type of coating used and how it was put on. Present day requirements have insisted on research methods which have analyzed materials that have gone into the coating mixture. Very careful tests are made of coating mixtures so that today a uniform coating mixture can be maintained and the materials that go into it can be carefully checked.

The study of coated paper has brought out the fact that you cannot produce a good coated sheet on a poor raw stock and the same thing is true on a poor coating machine. The coating room is the bottle neck in the manufacture of coated paper. Waste and seconds can be produced in quantity, and profits can be substituted for the waste and seconds when good coating equipment is used. That is the reason so many coated paper manufacturers today are installing more substantial and better type of coating equipment so as to reduce their costs and improve their quality.

The roll coating machine also has the advantage that it will apply lacquer coatings, such as clear lacquer, lacquer gold, aluminum and other metallic substances. It will also handle varnish, latex and even glue. It can be used to advantage in the handling of high satin white coatings. It is a flexible machine and it is our belief that the roll coating machine will be used to a great extent and will replace a good many of the brush coating machines.

For years coating mills have stood still but those days have gone forever. Today coating mills are spending a good deal of time in research work that is bringing great changes in their coating plants, and in the future we will see greatly improved coating, drying and winding equipment.

This Committee has spent a great deal of time in the study of the conditions of the past and present with regard to coating equipment and coating operations, and it is our intention to continue this study so that the splendid work which the Technical Association is carrying on for the coated paper industry can be used by everyone engaged in the manufacture of coated paper, and that they may benefit by the data that is collected due to the investigations of the TAPPI Coating Committee.



A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Bogalusa, La.—The Bogalusa Paper Company, Inc., is considering an expansion and improvement program at mill, including construction of new buildings and installation of machinery. Equipment now proposed includes additions to No. 1 and No. 2 paper machines for increased capacity, new sulphate recovery system, new evaporators and pulp washers, new pulp screens, lime burners, bleaching plant, wood room equipment, water and stock concrete tanks and auxiliary equipment. It is also proposed to carry out extensions and betterments in the power department, with installation of turbo-generators, boilers, pumps and accessories. Estimates of cost of program are now being made. United Engineers and Constructors, Inc., 112 North Broad Street, Philadelphia, Pa., engineers and contractors, are making surveys at the mill, preparatory to the proposed work. M. E. Cody is general manager.

Sturgis, Mich.—The Harvey Paper Products Company has awarded general contract to Frank Shoemaker, Sturgis, for proposed new addition to mill, on which work was recently started. It will be used primarily for production of paper specialties for the food trades, and is reported to cost more than $25,000 with equipment.

West York, Pa.—The Barnes Wall Paper Company has adopted increased production schedule at paper mill at West York, and is now running on a full time basis. Plant has been on a part-time for some weeks past.

Brooklyn, N. Y.—The Liberty Corrugated Container Corporation, care of Samuel Wallerstein, 220 Broadway, New York, attorney, recently organized by local interests, capital 200 shares of stock, no par value, plans operation of a local plant for the manufacture of corrugated boxes and containers. It is understood that the company will succeed to the business of a local company now specializing in similar products.

Mount Wolf, Pa.—The Superior Paper Products Company, Carnegie, Pa., has had plans drawn by D. A. Smith, York, Pa., architect, for proposed new branch plant at Mount Wolf, previously referred to in these columns, to be equipped for the manufacture of corrugated boxes and containers. The structure will be one-story, 90 x 180 ft., and is reported to cost approximately $40,000, with equipment.

Niagara Falls, N. Y.—The Defiance Paper Company is increasing production schedule at mill at Walnut and Third streets, and adding to working quota. Operations are now near capacity basis. The Niagara Wall Paper Company, an affiliated organization, with mill at same location, has arranged for similar advance in output schedule, and likewise has added to working force. It is expected to hold both plants to present basis for the remainder of the year. Thomas M. Uptegraff is president of both companies.

Nashville, Tenn.—The DuPont Rayon Company, Old Hickory, near Nashville, has adopted a capacity schedule at its local cellulose rayon mills, and all units are now on this basis, with full working forces.

New York, N. Y.—New York Label and Box Corporation, 148 West Twenty-third street, manufacturer of paper boxes and containers, and other paper goods has leased space in building at 275 Seventh avenue, and will occupy at early date for company headquarters.

Milford, N. J.—The Riegel Paper Corporation, Milford, has filed application with the Interstate Commerce Commission, Washington, D. C., protesting against the freight rates on wood pulp from Dexter, N. Y., point of shipment, to its mill at Milford. The present rate is 25 cents per 100 pounds, and company holds that this is excessive.

Newark, N. J.—The Commercial Paper Bag Company, Inc., 90 Commercial street, paper bags and containers, is planning rebuilding of three-story storage and distributing plant recently damaged by fire, with loss over $30,000, including building, equipment and stock. Company will continue operations from its branch on Euclid Avenue, pending reconstruction. David Trass and David Nimburg head the company.

Amcelle, Md.—Celanese Corporation, Amcelle, near Cumberland, Md., has advanced production schedule at its local cellulose rayon mill, reinstating about 1000 employes in different departments. A full time operating basis has been established.

De Pere, Wis.—The De Pere Paper Manufacturing Company, Fort Howard avenue, has begun work on rebuilding of its one-story plant, 30 x 150 feet, recently referred to in these columns, and expects to have the structure ready for occupancy at an early date. Estimated cost has not been announced. Herman Miller is manager.

Green Bay, Wis.—The Hoberg Paper and Fibre Company, manufacturer of tissue and crepe papers, and kindred stocks, has advanced production schedule at its mill and is now running on improved basis, with larger working quota.

Nitro, W. Va.—The Viscose Company of America, Inc., is reopening its local cellulose rayon mill, after shut down for several weeks, reinstating about 200 men.

New York, N. Y.—The H. J. Grey Company, 419 Broome street, paper products, has leased ground floor in building at 228 East 44th street, and will occupy for sales, storage and distributing service.

St. John, N. B.—The Port Royal Pulp and Paper Company will begin operations at its Fairville mill early in October, giving employment to large working force,

many being formerly employed at local mill of Nashwaak Pulp and Paper Company, Ltd. The Fairville plant is now being made ready for production.

Green Bay, Wis.—The Northern Paper Mills are advancing production schedule, with employment of larger working quota, and will continue on the improved basis for an indefinite period. Heavy orders have been received. The Fort Howard Paper Company, Green Bay, is also increasing operations, and has reinstated a number of workers. This company, likewise, has secured considerable new business.

Mount Wolf, Pa.—The Superior Paper Products Company, Carnegie, Pa., manufacturer of corrugated boxes and containers, will soon begin super-structure for its new one-story plant at Mount Wolf, recently noted in these columns, and will arrange equipment installation as soon as the mill is ready. The unit is estimated to cost about $40,000, with machinery. Plant at Carnegie will be continued in service as heretofore.

New Companies

Buffalo, N. Y.—Genesee Wall Paper Company, Inc., has been incorporated with capital of 100 shares of stock, no par value, to deal in wall paper, etc. Company will be represented by William J. Sernoffsky, Morgan Building, Buffalo.

Milwaukee, Wis.—D. Gash & Sons Paper Company, 2855 North 12th street, has been organized by Oscar and Morris A. Gash, and Martin J. Price, to deal in paper goods of various kinds.

Harrisonburg, Va.—The Massanetta Paper Supply Company has been organized by A. Dickenson, Harrisonburg, and associates, to deal in paper products of various kinds.

New York, N. Y.—The A. & P. Paper Products Company, Inc., has been incorporated with a capital of $10,000, to deal in paper goods of different kinds. Incorporators Harry Kaplan, 1602 Eastern Parkway, and Sidney Bussman, 2506 East Twenty-third street, both Brooklyn, N. Y. Company will be represented by G. D. Aranow, 202 Madison avenue, New York, attorney.

New York, N. Y.—Raygram Corporation has been incorporated with capital of 210 shares of stock, no par value, to deal in special paper products, including x-ray paper stocks, etc. Company will be represented by Henry H. Harkavy, 285 Madison avenue, New York, attorney.

Export Agents for Howard Allied Mills

The Howard Paper Company, Urbana, Ohio, and allied mills, The Aetna Paper Company, Dayton, Ohio, and Maxwell Paper Company, Franklin, Ohio, announces the appointment of American Paper Exports, Inc., 75 West street, New York City, as export managers and distributors for their products, including the well known and widely advertised brands of Howard Bond and Howard Ledger, Maxwell Bond and Correct Bond.

The domestic list of Howard Bond distributors has shown a phenomenal growth during the past few years and, while there has always been a considerable tonnage of the products of the Howard allied mills shipped for export, it is felt that this new connection will result in a world-wide distribution and representation not heretofore experienced.

The American Paper Exports, Inc., has long been looked upon as one of the highly successful exporters of paper and their addition to the Howard line of distributors will undoubtedly prove highly beneficial to both organizations.

Notes of the Toronto Trade

Fire started in the pulpwood pile of the Minnesota and Ontario Paper Company, along the M. D. & W. tracks a few days ago. Two of the railroad engines with tank cars attached were sent to battle the flames, which had made good headway and threatened to do serious damage. The company's clam shell was also pressed into service and a quantity of the burning wood removed to a field opposite the stock pile. Several hundred cords of pulpwood were destroyed before the blaze was extinguished. The origin of the fire is unknown.

A. G. Pounsford, manager of the Port Arthur Division of Provincial Paper, Ltd., announces the purchase in the Thunder Bay district of 50,000 cords of wood at an estimated total price of $300,000. Settlers in the vicinity will be given the first opportunity to supply the wood, which will be used to operate the company's mills during the coming year. If the settlers fall short in their bids the company will buy from contractors of cut wood from its own limits.

Fire broke out recently in the Hydro-Electric pulp mill, Campbellford, Ont., making the third blaze that has taken place there this year. The flames started in the raceway where the logs drop into the crusher. The damage was comparatively small.

The Fred W. Halls Paper Company, Ltd., Toronto and London, have just mailed out a beautiful art hanger done on Tanton Book, which it is claimed, "helps to make 'talking pictures' from ordinary advertising half-tones." The hanger is adorned with reproductions of illustrations used by a well known milling company in their display advertising.

Guy Dingle, well known in advertising and sales promotion work in Toronto, has been added to the sales staff of the Sommerville Paper Box Company, Ltd., in Toronto.

Small Pulpwood Peeling Output

The pulpwood peeling season in Northern Ontario is over, having lasted a little longer than usual. The Thompson & Heyland Lumber Company, Toronto, who have contracted for 25,000 cords of pulpwood for next season's delivery, report that the amount of wood peeled between Toronto and Cochrane on the north, Sudbury on the west and the Renfrew district on the east, will not be more than 20 to 25 per cent of last year. No poplar at all was peeled this summer owing to the mills being well supplied with this wood. On account of so few contracts being placed and the paper mills being provided with stocks of old wood, yet to be used up, many settlers and others who usually took a chance on the season's requisitions did not undertake any peeling operations this summer. Practically all of the limited amount of wood peeled was on contract and the price f.o.b. cars ranged from $6.00 to $7.50 for spruce and balsam, according to their location and freight rate. It is expected, however, that the pulpwood situation will improve as the stock in the hands of the mills is gradually being consumed.

Robert B. McEwan, Jr., Dead

[FROM OUR REGULAR CORRESPONDENT]

WEST ORANGE, N. J., September 10, 1932.—Robert B. McEwan, Jr., 40 years old, an official of the R. B. McEwan & Son Paper Company, of Whippany, N. J., died yesterday at his home at Oak Park Bend in the Llewellyn Park section here.

TECHNICAL ASSOCIATION MEETS AT HOLYOKE

(Continued from page 14)

Cambridge, Mass.; L. C. Anderson, Ontario Paper Co., Thorold, Ont., Canada; Allen Abrams, Marathon Paper Mills Co., Rothschild, Wis.; N. Altman, Butler Paper Co., Chicago, Ill.

H. A. Bolles, Strathmore Paper Co., Woronoco, Mass.; F. L. Becker, Bird Machine Co., South Walpole, Mass.; S. V. Burrows, American Chem. Corp., Boston, Mass.; F. K. Bawkett, National Tube Co., Boston, Mass.; G. S. Brezeau, Pulp Div. Weyerhaeuser Timber Co., Chicago.

P. S. Barnhart, Westfield River Paper Co., Westfield, Mass.; E. D. Brauns, Duriron Co., New York City; C. R. Blomstedt, American Scandinavian Student, Stockholm, Sweden; B. H. Briggs, Penn Fibreboard Corp., York, Pa.; Chas. Backus, Collins Mfg. Co., N. Wilbraham, Mass.; J. M. Booth, Huron Milling Co., New York City; L. K. Burnett, Robt. Gair Co., New London, Conn.; W. E. Brawn, Pejepscot Paper Co., Brunswick, Me.; A. M. Brooks, Raffold Process Corp., Andover, Mass.; A. B. Bradley, The Fibre Conduit Co., Orangeburg, N. Y.; O. Berger, G. D. Jenssen Co., New York City; D. Bartlett, American Writing Paper Co., Holyoke, Mass.; G. D. Bowne, Westinghouse Electric & Manufacturing Co., E. Pittsburgh, Pa.; C. L. Bachelder, Paper Makers Chemical Corp., Kalamazoo, Mich.; R. L. Bosworth, Chemical Paper Manufacturing Co., Holyoke, Mass.; E. F. Bearce, Chillicothe Paper Co., Chillicothe, Ohio; E. L. Baldwin, Baldwin Belting and Leather Co., New York City; C. M. Baker, A.P.P.A., Madison, Wisc.; Anker Bomholt, United Paper Mills, Denmark; R. B. Brown, Trenton, N. J.; John Bellows, Parker-Young Co., Lincoln, N. H.; L. M. Booth, Booth Chem. Co., Elizabeth, N. J.; H. A. Brawn, Strathmore Paper Co., West Springfield, Mass.; C. M. Bryan, Strathmore Paper Co., West Springfield, Mass.; J. H. Burgen, American Writing Paper Co., Holyoke, Mass.; P. K. Baird, Forest Products Lab., Madison, Wisc.; F. L. Barstow, U. S. Rubber Co., Fitchburg, Mass.

F. A. Curtis, American Writing Paper Co., Holyoke, Mass.; F. C. Clark, Skinner & Sherman, Inc., Boston, Mass.; C. M. Carmichael, Shawinigan Chem., Montreal Canada; H. N. Curier, Eaton Paper Co., Pittsfield, Mass.; J. A. Constance, Millers Falls, Mass.; A. F. Cosby, American Writing Paper Co., Westfield, Mass.; S. C. Collins, Rising Paper Co., Great Barrington, Mass.; James Coghill, Noble & Wood Mch. Co., Hoosick Falls, N. Y.; H. P. Cannon, Container Corp. of Am., Philadelphia, Pa.; J. Campbell, International Paper Co., Glens Falls, N. Y.; A. A. Coffin, Titanium Pigment Co., Brooklyn, N. Y.; W. Boyd Campbell, Forest Prod. Lab. of Can., Montreal, Can.; L. W. Crouse, Staley Sales, Springfield, Mass.

W. J. Cassidy, American Writing Paper Company, Holyoke, Mass.; G. N. Collins, International Paper Company, New York; J. C. Cunningham, B. F. Perkins & Son, Holyoke, Mass.; J. d'A. Clark, Scott Paper Company, Chester, Pa.; J. Carroll, New York, N. Y.; J. A. Cameron, Cameron Machine Company, Brooklyn, N. Y.; C. H. Champion, R. T. Vanderbilt Company, New York; O. W. Callighan, Edgar Brothers, Metuchen, N. J.; N. C. Cooper, Roessler & Hasslacher Company, Niagara Falls, N. Y.; R. C. Charron, U. S. Envelope Company, Worcester, Mass.

V. S. Denison, Beloit Iron Works, Beloit, Wis.; R. H. Doughty, Forest Products Laboratory, Madison, Wis.; D. S. Davis, East Northfield, Mass.; H. F. Dunbar, Keith Paper Company, Turners Falls, Mass.; W. F. Dewey, Rising Paper Company, Housatonic, Mass.; R. H. Dempsey, Rising Paper Co., Housatonic, Mass.; Chas. Davidson, Jr., Southworth Paper Co., Springfield, Mass.; M. W. Davis, Wood Industries Supply Co., Montreal, Canada.

Ivar Ekholm, National Aniline & Chemical Company, New York; Jacob Edge, Downingtown Manufacturing Company, Downingtown, Pa.; Ernest Erickson, Lagerloef Trading Company, New York; F. W. Egan, J. O. Ross Engineering Corp., New York.

L. D. Frisbie, Westfield River Paper Co., Russell, Mass.; J. Foxgrover, Paper Makers Chem. Corp., Kalamazoo, Mich.; G. E. Fitch, Albany Felt Co., West Springfield, Mass.; L. E. Fitzgerald, Paper Makers Chem. Corp., Carthage, N. Y.

R. C. Griffin, A. D. Little, Inc., Cambridge, Mass.; A. B. Green., Needham, Mass.; G. P. Genberg, Fraser Cos. Ltd., Edmundston, N. B.; W. N. Greer, Leeds & Northrop Co., Philadelphia, Pa.; P. P. Gooding, Strathmore Paper Co., Woronoco, Mass.

J. J. Healy, Merrimac Chemical Co., Boston, Mass.; G. K. Hill, Gilbert Paper Co., Menasha, Wis.; P. B. Holden, Rising Paper Co., Housatonic, Mass.; Herman R. Harrigan, District of Columbia Paper Co., Washington, D. C.; R. S. Hatch, Pulp Bleaching Corp., New York; Gerald Haywood, West Virginia Pulp & Paper Co., Piedmont, W. Va.; Charles M. Howell, Scott Paper Company, Chester, Pa.; M. W. Hedden, Racquette River Paper Co., Potsdam, N. Y.; Walter G. Hendrick, Collins Mfg. Co., N. Wilbraham, Mass.; H. H. Holden, Paper Makers Chem. Corp., Stoneham, Mass.; H. S. Hutton, Wallace & Tiernan, Montclair, N. J.; Sam D. Hellberg, American Writing Paper Co., Holyoke, Mass.; R. S. Von Hazmburg., Scott Paper Co., Chester, Pa.; J. C. C. Holding, American Stainless Steel Co., Pittsburgh, Pa.

J. F. Inderdohnen, The Bristol Co., Springfield, Mass.; C. C. Irving, Falulah Paper Co., Fitchburg, Mass.; H. G. Ingraham, Bird Machine Co., South Walpole, Mass.

Valdemar Jacobsen, National Aniline and Chemical Co., Philadelphia, Pa.; S. B. Jones, West Virginia Pulp & Paper Co., Piedmont, W. Va.; Herman Joachim, Federal Paper Board Co., Bogota, N. J.; W. O. Johnson, Strathmore Paper Co., Woronoco, Mass.; H. C. Johnson, Strathmore Paper Co., Woronoco, Mass.; Henry W. Johnston, Forest Products Laboratories of Canada, Montreal, P. Q.; S. B. Jones, E. D. Jones & Co., Pittsfield, Mass.; Andrew Jackson, American Writing Paper Co., Holyoke, Mass.

N. M. Kennedy, Penick & Ford Sales Co., New York City; R. S. Kellogg, News Print Service Bureau, New York; C. H. Kent, Mansfield, Bolton & Kent, New York City; Melvin L. Kemp, Strathmore Paper Co., West Springfield, Mass.; H. R. Karcher, The Babcock & Wilcox Co., Boston, Mass.; W. S. Kidd, E. B. Eddy Co., Ltd., Hull, P. Q.; Horace Keesey, Schmidt & Ault Paper Co., York, Pa.; T. J. Keenan, Paper Industry, New York, N. Y.; M. A. Krimmel, Hammermill Paper Co., Erie, Pa.; C. J. Kern, Moore & White Co., Philadelphia, Pa.; R. W. Kumler, Bennett, Inc., Cambridge, Mass.; J. P. Kennedy, American Writing Paper Co., Holyoke, Mass.; Frank H. Knowlton, A. E. Staley Manufacturing Co., Decatur, Ill.; George Knox, Crocker-McElwain Co., Holyoke, Mass.

L. H. Larson, R. T. Vanderbilt Co., New York City; G. T. Lane, Eastman Kodak Co., Rochester, N. Y.; F. H. Leonard, Marble-Nye Co., Providence, R. I.; A. G. Lyeth, The Babcock & Wilcox Co., Akron, Ohio; John T. Leecock, American Writing Paper Co., Holyoke, Mass.; K. E. Luger, Am. Sheet & Tin Plate Co., Pittsburgh, Pa.; Harry Liebeck, Scott Paper Co., Chester, Pa.; Frank

Ladd, Keith Paper Co., Turners Falls, Mass.; Ben Larrabee, Weyerhaeuser Timber Co., Longview, Wash.; Lester C. Lewis, Mead Corp., Chillicothe, Ohio; Laurin Laird, Bird Machine Co., S. Walpole, Mass.; C. E. Libby, N. Y. S. College of Forestry, Syracuse, N. Y.; Ernest Loveland, George La Monte & Co., Nutley, N. Y.; E. H. Lovenberg, Mathieson Alkali Works, Providence, R. I.; H. F. Lewis, Institute of Paper Chemistry, Appleton, Wis.

John McEwan, American Tissue Mills, Holyoke, Mass.; R. G. Macdonald, TAPPI, New York; D. W. McCready, University of Michigan, Ann Arbor, Mich.; Lewis Muscat, R. Fuess, New York; W. R. Maull, Dill & Collins Co., Philadelphia, Pa.; R. B. Martin, Wallace & Tiernan Co., Newark, N. J.; Fred Motschman, International Paper Co., Glens Falls, N. Y.; E. P. Marsh, Clifford M. Myers, Hollingsworth & Whitney Co., Waterville, Me.; A. D. Merrill, Chemipulp Process Inc., Watertown, N. Y.; B. De Millidge, B. Howard Smith Paper Mills, Ltd., Cornwall, Ont.; Ragnar Monnberg, Abitibi Fibre Co., Smooth Rock Falls, Ont.; H. R. Murdock, Champion Fibre Co., Canton, N. C.; James D. Miller, York Haven Paper Co., York Haven, Pa.; Don Montville.

A. W. Nickerson, Robert Gair Co., New York; W. L. Nixon, Holyoke, Mass.; W. A. Nivling, Huron Milling Co., Boston, Mass.; H. J. Norton, Rising Paper Co., Housatonic, Mass.; W. F. Norton, F. E. Norton & Sons, Henniker, N. H.

F. W. O'Rourke, General Dyestuffs Corp., New York; J. J. O'Connor, Mead Corp., Chillicothe, Ohio; C. R. O'Neill, Castle & Overton Inc., New York; R. F. O'Neill, International Paper Co., Holyoke, Mass.; H. L. O'Neil, Falulah Paper Co., Fitchburg, Mass.; J. O'Brien, Paper Mill, New York.

W. E. Piper, Dorr Co., New York; H. E. Pratt, Pejepscot Paper Co., Brunswick, Me.; Chas. Perry, Esleeck Mfg. Co., Turners Falls, Mass.; L. F. Parmenter, Woodford, Me.; F. C. Peterson, N. Y. S. College of Forestry, Syracuse, N. Y.; H. Parkhill, C. E. Peterson, Riegel Paper Corp., Riegelsville, N. J.; J. L. Parsons, Hammermill Paper Co., Erie, Pa.; D. K. Pattillo, Clinton Corn Syrup Refining Co., Clinton, Iowa.; R. W. Pattison, American Writing Paper Co., Holyoke, Mass.

G. A. Richter, Brown Co., Berlin, N. H.; H. R. Rafton, Raffold Process Co., Andover, Mass.; M. M. Rubin, Fraser Paper, Ltd., Madawaska, Me.; J. D. Rue, Hooker Electrochemical Co., Niagara Falls, N. Y.; E. O. Reed, Crane & Co., Dalton, Mass.; C. W. Rivise, Philadelphia, Pa.; L. C. Reynolds, American Writing Paper Co., Holyoke, Mass.; J. F. Rhoades, Mead Corp., Chillicothe, Ohio; J. J. Reilly, American Writing Paper Co., Holyoke, Mass.; W. J. Russell, American Writing Paper Co., Holyoke, Mass.; V. W. Richard, Rising Paper Co., Housatonic, Mass.

F. W. Schneider, Hampden Paint & Chem. Co., Springfield, Mass.; R. H. Stagemyer, Penn Fiberboard Co., New York; P. S. Sinclair, Sinclair Co., Holyoke, Mass.; F. T. E. Sisson, Racquette River Paper Co., Potsdam, N. Y.; B. W. Scribner, Bureau of Standards, Washington, D. C.; H. C. Schwalbe, Dill & Collins, Philadelphia, Pa.; J. S. Sconce, Hooker Electrochemical Co., Niagara Falls, N. Y.; L. W. Shattuck, M. S. Shenk, National Adhesives Co., New York; J. H. Slater, Escanaba Paper Co., Escanaba, Mich.; J. C. Sanburn, Strathmore Paper Co., W. Springfield, Mass.; D. M. Sutherland, Jr., Trenton, N. J.; H. A. Smith, Hamersley Mfg. Co., Garfield, N. J.; H. J. Skinner, Skinner & Sherman, Inc., Boston, Mass.; E. Sutermeister, S. D. Warren Co., Cumberland Mills, Me.; C. C. Snyder, Republic Steel Corp., Canton Ohio; C. P. Slocum, Corn Prod. Sales Co., Boston Mass.; H. S. Spencer Howard Smith Paper Mills, Quebec, Canada; O. R. Steffins, Penick & Ford Sales Co., New York City; W. L. Savell, Mathieson Alkali Works, New York City; O. I. Simonson, Milligan & Higgins Glue Co., New York City; Mr. Schmelks, Wallance & Tiernan Co., Bloomfield, N. J.

L. A. Thompson, Paper Makers Chem. Corp., Holyoke, Mass.; L. B. Tucker, Crane & Co., Dalton, Mass.; W. V. Torrey, S. D. Warren Co., Cumberland Mills, Me.; K. A. Taylor, Oxford Paper Co., Rumford, Me.; E. C. Tucker, Crocker-McElwain Paper Co., Holyoke, Mass.; John Traquair, Mead Corp., Chillicothe, Ohio; R. M. True, Crocker-McElwain Paper Co., Holyoke, Mass.; J. M. Tomb, Westinghouse Electric and Manufacturing Co., Boston, Mass.

D. D. Uong, Fitchburg Paper Co., Fitchburg, Mass.

G. R. Wholean, Strathmore Paper Co., Mittineague, Mass.; G. F. Williamson, Strathmore Paper Co., Mittineague, Mass.; Wm. J. Weed, Electro Bleaching Gas Co., New York; Johannes Westergaard, Atterbury Bros. Inc., New York; P. F. Wehmer, Electrical Testing Labs., New York; A. G. Wakeman, Fox River Paper Co., Appleton, Wisconsin.

L. M. Yoerg, American Writing Paper Co., Holyoke, Mass.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., September 19, 1932.—The first meeting of the New England Paper Merchants Association for the season is to be held October 6 at the Harvard Club of Boston. The speaker of the evening will be Col. B. A. Franklin, formerly vice-president of the Strathmore Paper Company, now consulting engineer on business management.

A sales meeting of Storrs & Bement Company was held at the office of the company Saturday morning, with President William N. Stetson, Jr., and General Manager John H. Brewer presiding. At this meeting the new Warren Blue Book (6th edition) was introduced. This book contains samples of the entire line of the Warren papers, as now made up.

Chas. A. Esty, managing director of Carter Rice & Co. Corp., is chairman of the publicity and membership committee of the paper trade in the drive of the National Economy League.

Much enthusiasm was shown at a sales meeting of the Andrews Paper Company Saturday morning, at which President Frank H. Merrill presided.

Aaron P. Mitchell, of the Riegel Company, New York City, called on the local trade last week.

The Hammermill Paper Company, Erie, Penn., has just sent out to its agents full details in regard to the 1932 Hammermill Christmas Gift Contest, which began September 12. A very beautiful gift of merchandise is to be awarded according to the tonnage sold each representative. This plan, which was followed a year ago, was exceedingly successful.

The Falulah Paper Company, Fitchburg, Mass., has incorporated a new feature in the complete new sample box of its lines prepared for distribution. This feature is a handy tape placed at the back of the box which can be pulled up, giving instant visibility to the various swatches.

E. J. McDonnell Goes To Fitchburg

E. J. McDonnell, who for the past three years has been General Manager of the Groveton Paper Company, Inc., Groveton, N. H., has resigned his position effective October 1, to become connected with the Fitchburg Paper Company, of Fitchburg, Mass., as general superintendent.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING SEPTEMBER 17, 1932

CIGARETTE PAPER

Champagne Paper Corp., Pipestone County, Havre, 134 cs.; American Tobacco Co., Ile de France, Havre, 350 cs.; Champagne Paper Corp., Ile de France, Havre, 53 c.; Gluckman & Strauch, Rochambeau, Havre, 5 cs.; M. Speigel & Son, Cypria, Barcelona, 2 cs.

WALL PAPER

Irving Trust Co., Deutschland, Hamburg, 7 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Port Darwin, London, 2 bls.

NEWS PRINT

Jay Madden Corp., Berlin, Bremen, 201 rolls; Perkins Goodwin & Co., Berlin, Bremen, 109 rolls; Parsons & Whittemore, Inc., Fred. VIII, Oslo, 170 rolls; ——, Scanyork, Kotka, 423 rolls; Jay Madden Corp., Scanyork, Kotka, 242 rolls; Brooklyn Times, Blankaholm, Norrkoeping, 656 rolls; Gilman Paper Co., Blankaholm, Norrkoeping, 378 rolls; Perkins Goodwin & Co., Deutschland, Hamburg, 390 rolls.

PRINTING PAPER

P. C. Zuhlke, Minnewaska, Antwerp, 37 cs.; P. Puttmann, Minnewaska, Antwerp, 30 cs.

WRAPPING PAPER

Standard Products Corp., Minnewaska, Antwerp, 4 cs,, 11 rolls.

FILTER PAPER

General Printing Co., Kirishima Maru, Tokyo, 3 cs.; H. Reeve Angel & Co., Inc., Amer. Farmer, London, 12 cs.; E. Fougera & Co., Olympic, Southampton, 9 cs.; J. Manheimer, Olympic, Southampton, 80 bls.

FILTER PULP

A. Giese & Son, Deutschland, Hamburg, 10 bls.

FILTER MASSE

A. Giese & Son, Deutschland, Hamburg, 7 bls.

DRAWING PAPER

H. Reeve Angel & Co., Inc., Amer. Farmer, London, 3 cs.

PARCHMENT PAPER

Intl Forwarding Co., Minnewaska, Antwerp, 1 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Minnewaska, Antwerp, 12 cs.

METAL COATED PAPER

Globe Shipping Co., Columbus, Bremen, 4 cs.; Globe Shipping Co., Bremen, Bremen, 42 cs.; K. Pauli Co., Deutschland, Hamburg, 3 cs.; Taub Hummell & Schnall, Deutschland, Hamburg, 3 cs.

BARYTA COATED PAPER

Globe Shipping Co., Columbus, Bremen, 5cs., 21 crates.

DECALCOMANIA PAPER

C. W. Sellers, Bremen, Bremen, 5 cs.; B. F. Drakenfeld & Co., Scythia, Liverpool, 8 cs. (duplex).

TISSUE PAPER

D. F. Young, Scythia, Liverpool, 5 cs.

GUMMED PAPER

Heemsoth Basse & Co., Columbus, Bremen, 6 cs.

ENVELOPES

Beckhard Simfred & Co., Deutschland, Hamburg, 4 cs.

COPYING PAPER

Roneo Co., Amer. Farmer, London, 6 cs.

CARD BOARD

Hensel Bruckman & Lorbacher, Deutschland, Hamburg, 6 cs.

CARD BOARD BOXES

M. Tannenbaum, Berlin, Bremen, 5 cs.; Cohn & Rosenberger, Bremen, Bremen, 6 cs.

RAW CARD

F. C. Strype, Columbus, Bremen, 6 cs.

MISCELLANEOUS PAPER

Hensel Bruckman & Lorbacher, Berlin, Bremen, 3 cs.; The Borregaard Co. Inc., Kungsholm, Gothenburg 1,329 rolls, 57 bls.; H. Reeve Angel & Co. Inc., Kungsholm, Gothenberg, 14 bls.; Iwai & Co., Kirishima Maru, Kobe, 2 cs.; C. L. Voorhees, Kirishima Maru, Yokohama, 5 cs.; Keller Dorian Paper Co., Ile de France, Havre, 4 cs.; Tiffany & Co., Ile de France, Havre, 12 cs.; M. Grumbacher, Ile de France, Havre, 14 bls.; G. E. Stechert, Ile de France, Havre, 4 cs.; R. Wilson Paper Corp., Cameronia, Glasgow, 9 cs.; Intl Forwarding Co., Deutschland, Hamburg, 1 cs.; Remington Rand, Inc., Deutschland, Hamburg, 16 cs.

RAGS, BAGGINGS, ETC

E. J. Keller Co., Inc., Pipestone County, ——, 70 bls. rags; Hicks Costarino & Co., Pipestone County, Havre, 32 bls. rags; Castle & Overton, Inc., Kungsholm, Gothenburg, 34 bls. rags; Bank of N. Y. & Trust Co., Cameronia, Glasgow, 81 bls. bagging; ——, Amer. Farmer, London, 321 bls. paper stock; Martanco Stamp Co., Adriatic, Liverpool, 10 bls. waste paper; Irving Trust Co., Cold Harbor, Manchester, 43 bls. bagging; E. J. Keller Co., Inc., New Britain ——, 415 bls. flax waste, 39 bls. rags.

OLD ROPE

Castle & Overton, Inc., Borodino, Hull, 79 coils.

GLUE STOCK, ETC.

——, Minnewaska, Antwerp, 210 bags glue stock; ——, Berlin, Bremen, 400 bags hide glue; ——, Deutschland,

Hamburg, 200 bags hide glue, 1,700 bags bone glue; ——, Cold Harbor, Manchester, 346 bags hide cuttings.

WOOD PULP

Irving Trust Co., Berlin, Bremen, 600 bls. wood pulp; J. Andersen & Co., Kungsholm, Gothenburg, 375 bls. sulphite; Perkins Goodwin & Co., Kungsholm, Gothenburg, 153 bls. sulphate; E. M. Sergeant & Co., Kungsholm, Gothenburg, 748 bls. dry soda pulp; Johaneson Wales & Sparre, Inc., Kungsholm, Gothenburg, 480 bls. wood pulp; Chemical Bank & Trust Co., Fred. VIII, Oslo, 750 bls. sulphite, 112 tons; J. Andersen & Co., Fred. VIII, Oslo, 150 bls. wood pulp, 25 tons; The Borregaard Co. Inc., Fred. VIII, Oslo, 168 bls. wood pulp, 28 tons; Castle & Overton, Inc., Scanyork, Wiborg, 898 bls. wood pulp; Tradesmans National Bank, Blankaholm, Norrsundet, 875 lbs. sulphate; Stora Kopparberg Corp., Blankaholm, Gefle, 125 bls. wood pulp; Castle & Overton, Inc., Deutschland, Hamburg, 835 bls. wood pulp, 167 tons.

PULPWOOD

West Virginia Pulp & Paper Co., Nyhavn, St. Peters, 1,038 cords; Polaris Shipping Co., Facto, Guysboro, 850 cords.

ALBANY IMPORTS

WEEK ENDING SEPTEMBER 17, 1932

Gottesman & Co. Inc., Scanyork, Iggesund, 6,125 bls. sulphite; Bulkley Dunton & Co., Blankaholm ——, 1,750 bls. sulphite; Pagel Horton & Co. Inc., Blankaholm, Gefle, 1,500 bls. sulphite; Pagel Horton & Co. Inc., Blankaholm, Sikea, 2,100 bls. sulphite.

BOSTON IMPORTS

WEEK ENDING SEPTEMBER 17, 1932

E. J. Keller Co. Inc., Pipestone County, ——, 73 bls. bagging; E. J. Keller Co., Inc. Elmshorn, ——, 340 bls. wood pulp; 1st Natl Bank of Boston, Pipestone County, Havre, 42 bls. new cuttings; International Purchasing Co., Borodino, Hull, 260 coils old rope, 79 bls. yarn; H. C. Houghton Co., Amer. Farmer, London, 3 cs. printing paper; 1st Natl Bank of Boston, Amer. Farmer, London, 18 bls. rags; Smith Paper Co., Amer. Farmer, London, 36 bls. rags; G. F. Malcolm Inc., Scythia, Liverpool, 25 cs. tissue paper; T. D. Downing & Co., Cold Harbor, Manchester, 17 bls. paper stock.

BALTIMORE IMPORTS

WEEK ENDING SEPTEMBER 17, 1932

Bulkley Dunton & Co., K. Miles, ——, 6,000 bls. wood pulp; Bulkley Dunton & Co., Tampa. ——, 250 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING SEPTEMBER 17, 1932

E. J. Keller Co. Inc., Pipestone County, ——, 160 bls. rags, 45 bls. new cuttings; W. I. Merl, Pipestone County, Havre, 2 cs. writing paper; Central Hanover Bank & Trust Co., Kirishima Maru, Kobe, 50 bls. rags; Chase National Bank, Kirishima Maru, Kobe, 150 bls. rags; Lagerloef Trading Co., Scanyork, Helsingfors, 520 bls. wood pulp, 104 tons; ——, Scanyork Kotka, 68 rolls news print; Lagerloef Trading Co., Scanyork, Kotka, 1,100 bls. mechanical pulp, 220 tons; Castle & Overton, Inc., Scanyork, Wiborg, 3,492 bls. wood pulp, 693 tons; Gilman Paper Co., Blankaholm, Norrkoeping, 882 rolls news print; The Borregaard Co. Inc., Blankaholm, Gothenburg, 250 bls. wood pulp; ——, Blankaholm, Gothenburg, 57 rolls paper; Gottesman & Co. Inc., Blankaholm, Gothenburg, 615 bls. wood pulp; Gottesman & Co. Inc., Blankaholm, Gefle, 500 bls. sulphite; Bulkley Dunton & Co., Blankaholm, ——, 250 bls. sulphite.

NORFOLK IMPORTS

WEEK ENDING SEPTEMBER 17, 1932

Chase National Bank, N. Maersk, Kobe, 400 bls. bagging.

NEWPORT NEWS IMPORTS

WEEK ENDING SEPTEMBER 17, 1932

Perkins Goodwin & Co., Blankaholm, Gothenburg, 1,999 bls. sulphate.

NEW ORLEANS IMPORTS

WEEK ENDING SEPTEMBER 17, 1932

Aurora Beacon News, Blankaholm, Hallstavik, 788 rolls news print; Whitney National Bank, Blankaholm, Sundsvall, 462 rolls news print; Tradesmans National Bank, Blankaholm, Norrsundet, 2,000 bls. sulphate.

GALVESTON IMPORTS

WEEK ENDING SEPTEMBER 17, 1932

——, Kirishima Maru, Kobe, 25 bls. rags; Southern Trading Co., Blankaholm, Gothenburg, 205 rolls news print.

New York State Foresters Meet

[FROM OUR REGULAR CORRESPONDENT]

WARRENSBURG, N. Y., September 12, 1932—About 75 members of the state section of the Society of American Foresters were in attendance at the annual meeting held during the past week at the Pack Demonstration Forest near here. The convention opened with a business session at the forest and was concluded with a banquet at the hotel in this village. Inspections of various points of interest in and around the forest were included in the program. Clifford Forest, director of the Demonstration Forest, was in charge of activities and a number of experiments being carried on were explained to the visiting host. Others taking an active part in directing the convention included Dr. Ray Hirt and Prof. Sven Hieberg, both of the State College of Forestry at Syracuse University.

Addresses were delivered during the meeting by William G. Howard, State Superintendent of Forests; Dr. Hugh Baker, chairman of the New York State division of the Society, and Franklin Reed, Secretary of the national body of the American Foresters. Dr. Baker, who is dean of the College of Forestry at Sracuse University, presided.

National Paper Products Improvements

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., September 19, 1932.—Extensive improvements are being made by the National Paper Products Company including the installation of a huge tank for ground wood which will be used in increasing the quality of the products turned out. The tank will be capable of holding 200,000 gallons and will be used as a part of the pulp system. The installation is being made at the West End division of the company under supervision of a Chicago contracting firm which plans to have it ready for operation early next month. A concrete base for the new tank was made by a group of mill workers.

The first of a series of meetings of department heads and plant executives connected with the company was held this week following an elaborate dinner at the hotel in this village. It was announced that the aim of the meetings is to develop a cooperative spirit and to give the officials the opportunity of discussing business problems.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, September 21, 1932.

Trading in the local paper market was moderately active during the past week. Demand for the various standard grades is mainly along seasonal lines. Sales forces of the leading paper organizations are hoping for a general expansion of business from now on until the end of the year. The price situation continues unsatisfactory.

The news print paper market is very unsettled. The announcement that Price Bros. & Co. had reduced their quotations to their United States customers by $5.50 per ton, while not unexpected, was disappointing. Stocks of news print paper at United States and Canadian mills at the end of August reached 86,011 tons, compared with 80,784 tons in July.

Demand for the various grades of paper board is more persistent. Box board operations are well maintained. Prices are firmer. The fine paper market is displaying more activity than of late. Tissues are moving in seasonal volume. The coarse paper market continues to improve and kraft wrapping paper prices are steadier.

Mechanical Pulp

Steadiness prevails in the ground wood market. Demand for both the imported and domestic mechanical pulp is fairly satisfactory, considering general business conditions. No radical price changes have been reported. No. 1 moist imported is quoted at from $18 to $20 per ton, on dock; while domestic No. 1 is selling at from $16 to $24 f.o.b. mill.

Chemical Pulp

The chemical pulp market is exhibiting a stronger undertone. Inquiries are becoming more frequent, some of which should materialize into good orders. Imported bleached sulphite is now quoted at from $2.00 to $2.90, on dock, Atlantic ports. Domestic and Canadian bleached sulphite is selling at from $1.75 to $3.75 f.o.b. pulp mill.

Old Rope and Bagging

Paper mill demand for old rope is restricted. However, offerings of domestic and imported old manila rope are limited and prices are generally steady and unchanged. Small mixed rope is quiet. The bagging market is fairly active. Both scrap and gunny bagging are going forward in moderate volume. Prices remain unchanged, in most instances.

Rags

The domestic rag market is showing some signs of revival. Cotton cuttings are in improved request. Roofing grades are moving in satisfactory volume for the season. Prices are steadier, although still considered too low. Sentiment in the imported rag market is also better. Prices of the various grades continue strictly nominal.

Waste Paper

Conditions in the paper stock market are gradually improving. The better grades of waste paper are steadier, especially hard white envelope cuttings and soft white shavings. More interest is also being displayed in book stock, which is firmer than of late. Other grades that are holding up well are old kraft machine compressed bales and strictly folded news.

Twine

While most of the business transacted in the local twine market during the past week was along routine lines, sentiment in the industry is improving and more lively trading is anticipated in the near future. Supplies are moving into consumption in fair volume. Prices are holding up fairly well, despite keen competition.

James A. Mullen Dead

HOLYOKE, Mass., September 19, 1932.—Word was received here today of the death at Randolph, Mass., of James A. Mullen, 75, the result of a shock received eight or 10 days ago. Mr. Mullen was many years in the paper industry in Holyoke and while superintendent of the Crocker Manufacturing Company which eventually became part of the American Writing Paper Company, he was regarded as the best color expert in New England. He was one of the few remaining of the "old guard" which numbered William Reardon, James W. Toole, William McCorkindale and others.

Mr. Mullen was born in Fitchburg and after holding several executive positions became associated with his brother John in establishing the Mullen Brothers Paper Company of St. Joseph, Mich. Later he came to Holyoke as superintendent of the Crocker company and after the American Writing Paper Company was organized was with them for a time later taking charge of mills in Wisconsin.

When Clifton A. Crocker with R. Frank McElwain organized the Crocker-McElwain Company, Mr. Mullen was summoned to assist in the organization. Later he retired and removed to Randolph. Besides his widow he leaves one son, Edward B. and two grandchildren. The funeral was held this afternoon at Randolph.

Veldown Reports Increased Orders

GLENS FALLS, N. Y., September 19, 1932.—Operations have been steadily increased at the Veldown division of the International Paper Company in South Glen Falls and about 75 hands are being employed. It is claimed that the receipt of large orders has been the principal reason for enlarging the force and officials regard the outlook as encouraging. Orders ahead are understood to insure normal operations for some time.

Big Order for Tissue

APPLETON, Wis., September 16., 1932.—An order for forty cars of tissue has been received by the Seminole Paper Company, Chicago, according to Charles P. McCrory, Milwaukee representative. The train load order will be filled by the company's mills at Marinette, Wis., and was received from a prominent chain store organization. The report has also been confirmed by Agner B. Hansen, general manager of the M. & M. Paper Company.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL.
Wednesday, September 21, 1932.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Trading in the bleaching powder market continues moderately active. The contract movement is fairly heavy for the time of year. Prices remain unchanged. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market again advanced. Domestic standard ground is now quoted at 6 cents and finely ground at 7 cents per pound. Argentine standard ground is still selling at 8 cents and finely ground at 8½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—The caustic soda market is marking time. Contract shipments are moving regularly. Solid caustic soda is still quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—Conditions in the china clay market are fairly satisfactory. Prices are generally steady and unchanged. Imported china clay is quoted at from $10 to $15 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Demand for chlorine is fairly active. Following the recent decline in quotations, the price situation is somewhat steadier. Chlorine is now quoted at $1.55 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is easier. The grades of gum rosin used in the paper mills are now quoted at from $3.90 to $4.25 per 280 pounds, in barrels, at works; while wood rosin is selling at $2.80 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Paper mill interest in the salt cake market is more in evidence. Salt cake is still quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works; while imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—Steadiness prevails in the soda ash market. Demand is fairly persistent and inquiries are more numerous. Quotations on soda ash, in car lots, at works, per 100 pounds, are still as follows: in bulk, $1.00; in bags, $1.25; and in barrels, $1.38.

STARCH.—The starch market is displaying a fairly strong undertone. Contract shipments are moving at a steady pace. Special paper making starch is still quoted at $2.44 per 100 pounds, in bags; and at $2.71 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Most of the business transacted in the sulphate of alumina market was along routine lines. Commercial grades are still quoted at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts, and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Production of talc is being maintained in sufficient volume to take care of current requirements. Domestic talc is still quoted at from $16 to $18 per ton, in bulk, at mine; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	38.00
Bonds	4.50	@	53.25
Index	6.00	@	12.00
Writings—			
Extra Superfine	6.50	@	15.00
Superfine	6.25	@	14.75
Tub sized	4.50	@	7.00
Engine sized	4.00	@	5.00
Book, Cased—			
S. & S. C.	5.25	@	—
M. F.	3.75	@	5.00
Coated and Enamel	6.25	@	9.75
Lithograph	6.75	@	11.25
Tissues—Per Ream—			
White No. 1	.50	@	.70
Anti-Tarnish M. G. only	.65	@	.70
Colored	.70	@	.90
White No. 2	.55	@	.60
Kraft	.65	@	.70
Manila	.55	@	.60
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middies	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09¾	@	—
No. 2	.11¾	@	—
Bleached, basis 20 lbs.	.11¾	@	—

(Delivered New York)

News, per ton—			
Roll, contract	53.00	@	—
Rolls, spot	53.00	@	—
Sheets	58.00	@	—
Side Runs	38.00	@	43.00
Kraft—			
No. 1 Domestic	4.75	@	6.00
No. 2 Domestic	2.50	@	—
Southern	2.50	@	—
Imported	2.75	@	3.50
Boards—per ton—			
News	25.00	@	27.50
Straw	29.50	@	35.00
Chip	25.00	@	27.50
Binders' Boards	62.00	@	70.00
Standard 85 Test Liner	24.00	@	26.50
Sgl. Mla. Ll. Chip	35.00	@	37.50

(F. o. b. Mill)

Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—			
Moist	18.00	@	20.00
Dry	19.00	@	21.00

(F. o. b. Mill)

No. 1 Domestic	16.00	@	24.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	2.00	@	2.90
Easy Bleaching	1.60	@	1.75
No. 1 strong unbleached	1.40	@	1.60
Mitscherlich unbleached	1.55	@	1.75
No. 2 strong unbleached	1.25	@	1.35
No. 1 Kraft	1.40	@	1.65
No. 2 Kraft	1.30	@	1.40
Sulphate—			
Bleached	1.85	@	2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic and Canadian)—			
Bleached	1.75	@	3.75
Easy Bleaching	1.75	@	1.90
News	1.20	@	1.60
Mitscherlich	2.25	@	2.55
Kraft (Domestic)	1.50	@	2.75

(Delivered Paper Mills)

Soda Bleached	2.25	@	—

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	4.00	@	4.25
New White, No. 2	3.00	@	3.25
Silesias No. 1	3.75	@	4.00
New Unbleached	5.50	@	6.00
New Soft Blacks	2.75	@	3.00
Blue Overall	3.00	@	3.50
Fancy	1.50	@	1.75
Washables	1.15	@	1.40
Mixed Khaki Cuttings	2.50	@	3.00
Pink Corset Cuttings	2.75	@	3.25
O. D. Khaki Cuttings	3.00	@	3.25
Men's Corduroy	1.00	@	1.25
New Mixed Blacks	2.25	@	2.50

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White, No. 2—			
Repacked	1.75	@	2.00
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.00	@	1.25
Black Stockings	2.00	@	2.25
Roofing Rags—			
No. 1	.53	@	.58
No. 2	.48	@	.53
No. 3	.43	@	.48
No. 4	.38	@	.43
No. 5A	.33	@	.38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@	1.50
New Mixed Cuttings	1.60	@	1.75
New Light Silesias	3.40	@	3.50
Light Flannelettes	3.25	@	3.50
Unbleached Cuttings	5.50	@	6.00
New White Cuttings	4.25	@	4.50
New Light Oxfords	3.75	@	4.00
New Light Prints	2.00	@	2.25

Old Rags

No. 1 White Linens	5.25	@	5.50
No. 2 White Linens	4.50	@	4.75
No. 3 White Linens	3.25	@	3.75
No. 4 White Linens	1.75	@	2.25
No. 1 White Cotton	4.00	@	4.25
No. 2 White Cotton	3.00	@	3.25
No. 3 White Cotton	2.25	@	2.50
No. 4 White Cotton	1.40	@	1.50
Extra Light Prints	1.90	@	2.10
Ord. Light Prints	1.60	@	1.75
Med. Light Prints	1.40	@	1.55
Dutch Blue Cottons	1.35	@	1.40
French Blue Linens	1.80	@	1.90
German Blue Linens	1.70	@	1.80
German Blue Cottons	1.20	@	1.25
Checks and Blues	1.25	@	1.30
Lindsay Garments	.75	@	.80
Dark Cottons	.70	@	.75
Old Shopperies	.55	@	.60
New Shopperies	.60	@	.65
French Blues	1.25	@	1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.00	@	1.10
Domestic	1.15	@	1.25
Wool Tares, light	.80	@	.85
Wool Tares, heavy	.80	@	.85
Bright Bagging	.75	@	.80
Small Mixed Rope	.80	@	.90
Manila Rope—			
Foreign	1.50	@	1.60
Domestic	1.50	@	1.75
New Burlap Cut	1.65	@	1.75
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	1.60	@	1.70
Ordinary Hard White No. 1	1.35	@	1.45
Hard White No. 2	1.25	@	1.30
Soft White No. 1	1.30	@	1.40
Flat Stock—			
Stitchless	.55	@	.65
Overissue Mag	.55	@	.65
Solid Flat Book	.50	@	.55
Crumpled No. 1	.35	@	.40
Solid Book Ledger	1.50	@	1.75
Ledger Stock	.45	@	.55
New B. B. Chips	.20	@	.25
Manilas—			
New Env. Cut	1.25	@	1.35
New Cuttings	1.00	@	1.05
Extra No. 1 old	.80	@	.90
Print	.35	@	.40
Bogus Wrapper	.30	@	.35
Container	.25	@	.30
Old Kraft Machine—			
Compressed bales	.75	@	.85
News—			
No. 1 White News	1.05	@	1.15
Strictly Overissue	.35	@	.40
Strictly Folded	.30	@	.35
No. 1 Mixed Paper	.15	@	.20

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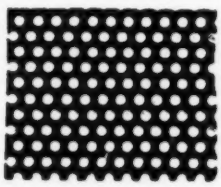

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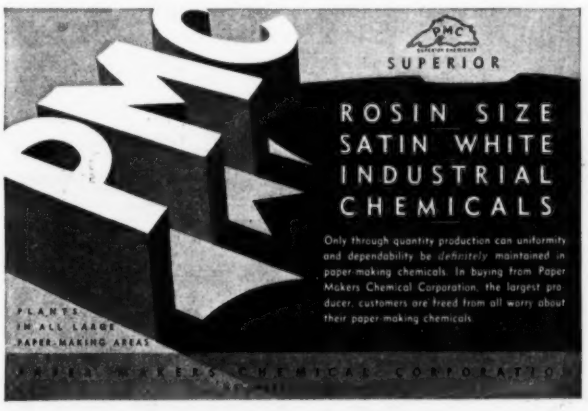
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Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finisned Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	99¾	@	.11¾
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine Balls	.08¾	@	.10¼
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S &S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	3.50	@	4.50
Southern Kraft	2.62½	@	—
No. 2 Kraft	2.62½	@	—
Wood Tag Boards	04¾	@	.06¾
Sulphite Screenings	.03	@	.03¾
Manila Tissue	.07	@	.07¾
White Tissue	.07¼	@	.07½

(Delivered Central Territory)

News, per ton—			
Rolls, contract	53.00	@	—
Sheets	58.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.50	@	1.55
No. 1 Hard White	1.40	@	1.45
No. 1 Soft White	1.00	@	1.10
Ledger & Writings	.45	@	.55
Solid Books	.25	@	.30
Blanks	1.00	@	1.05
Krafts	.70	@	.80
New Kraft Cuts	1.15	@	1.25
Manila Env. Cuts	1.25	@	1.30
Ex. No 1 Manila	.90	@	1.00
Print Manila	.30	@	.35
Overissue News	.30	@	.35
Old Newspapers—			
No. 1	.25	@	.30
Mixed Papers—			
No. 1	.15	@	.20
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¼	@	04¼
Southern Kraft No. 1	—	@	.03¾
Southern Kraft No. 2	—	@	.02¼
Common Bogus	.03	@	.04

(Delivered Philadelphia)

News Print Rolls	58.00	@	62.00
Straw Board	50.00	@	—
News Board	22.00	@	25.00
Chip Board	21.00	@	23.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	62.00	@	65.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.03½	@	.04
New White, No. 2.	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01	@	.01½
Blue Overall	.03	@	.03½
Cottons—According to grades—			
Washable No. 2	.01	@	.02
New Blue	.01	@	.02
Fancy	.01½	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.03½
No. 2 Mixed	.02½	@	.03
Corduroy	.02	@	.02½
New Canvas	.03½	@	.04
New Black Mixed	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.00
Miscellaneous	1.75	@	2.00
M. G.	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.80	@	1.90
No. 2 Hard White	1.60	@	1.70
No. 1 Soft White	1.50	@	1.65
No. 2 Soft White	1.30	@	1.45
No. 1 Mixed	.40	@	.50
No. 2 Mixed	.35	@	.40
Solid Ledger Stock	1.00	@	1.10
Writing Paper	.80	@	.90
No. 1 Books, heavy	.55	@	—
No. 2 Books, light	.40	@	—
No. 1 New Manila	1.00	@	1.15
No. 1 Old Manila	.90	@	1.00
Print Manila	.40	@	—
Container Manila	.40	@	.45
Old Kraft	.85	@	.95
Common Paper	.15	@	.20
No. 1 Mixed Paper	.20	@	.25
Straw Board, Chip	.25	@	.35
Binders Board, Chip	.25	@	.35
Corrugated Board	.30	@	.35
Overissue News	.35	@	.40
Old Newspaper	.20	@	.25

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¼
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	—	@	.02½

(F. o. b. Boston)

Southern Kraft	—	@	.02½

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	@	.02¾

(Delivered New England points)

News Print, rolls	—	@	52.50
Straw Board, rolls	.009	—	@35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	25.00	@	30.00
Chip Board	—	@	25.00
Chip Board (Creasing)	25.00	@	27.50
Single Manila Lined Chip	—	@	35.00
Single White, Patent Coated News Board—			
Binder	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Soft White	—	@	1.50
No. 1 Old Manila	.65	@	.75
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.20	@	1.40
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.60	@	.70
No. 1 Books, heavy	.50	@	.60
No. 1 Books, light	—	@	.30
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.55	@	.65
White Blank News	1.00	@	1.05
Kraft No. 1	.90	@	1.00
Manila	.80	@	.90
No. 1 Mixed Papers	.12½	@	.15
Print Manila	.30	@	.40
Overissue News	.35	@	.45
Old Newspapers	.27½	@	—
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.17½	@	.22½
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	1.10	@	—
Domestic	.80	@	.90
Manila Rope—			
Foreign	1.40	@	1.50
Domestic	—	@	1.60
Transmission Rope	1.00	@	—
Mixing String	—	@	.30
Jute Rope	—	@	.75
Jute Carpet Threads	.25	@	.30
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	.60	@	1.00
No. 1 Scrap Burlap	.80	@	.90
Scrap Sisal	.75	@	.85
Scrap Sisal for shredding	.90	@	1.00
Wool Tares, heavy	.65	@	.75
New Burlap Cutting	.75	@	.90
Australian Wool Pouches	—	@	1.50
Heavy Baling Bagging	.90	@	1.10
Paper Mill Bagging	.50	@	.60
Bagging No. 2	.20	@	.25
No. 1 Burlap	1.80	@	2.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01½
New White No. 1.	.03¾	@	.04
New White No. 2.	.02¾	@	.03¾
Silesias No. 1	—	@	.03
New Black Silesias	.02½	@	.03¾
New Unbleached	.05	@	.05½
Fancy	—	@	.02½
Washable	—	@	.01¾
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	—	@	.05
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White No. 2—			
Repacked	.02¼	@	.02½
Miscellaneous	.02	@	.02¼
Twos and Blues	.90	@	1.00
Thirds and Blues—			
Repacked	.75	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.32½	@	.37½
No. 2	.30	@	.35
No. 3	.25	@	.30

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.40	@	.50
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.25	@	1.50
New Checks & Blues	2.25	@	2.50
Old Fustians	—	@	.75
Old Linsey Garments	.55	@	.65

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¼	@	—
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.40	@	—
White Wrap	3.00	@	—
"B" Manila	4.90	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.40	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	52.50	@	53.00
Sheets	57.50	@	—

Pulp
(F. o. b. Mill)

Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	48.00	@	58.00
Sulphate	55.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	1.80	@	—
Soft White	1.40	@	—
White Blk. News	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.25	@	—
Printed Manilas	.55	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06½

An example of a high-carbon 18/8 alloy steel ring which failed in sulphite liquor service through intercrystalline corrosion.

These FAILURES are NOT necessary evils

Intercrystalline corrosion has been the cause of many failures of alloy steel products in sulphite liquor service. So much so, in fact, that many pulp men have come to assume such failures as necessary evils.

But an 18/8 chromium alloy steel with not to exceed .07% carbon content is a dense homogeneous casting that is not susceptible to intercrystalline corrosion. Such castings are difficult to make, requiring high frequency electric induction furnaces combined with specialized experience.

That is why The Duriron Company's Durco-Nirosta steels stand almost alone in their field. Relief valves, strainers, pumps, digester fittings and similar castings used for sulphite pulp processing are procurable in low-carbon Durco-Nirosta alloy steel. They give unparalleled service.

If you are interested in economical sulphite pulp processing, let our Engineers suggest the best use of Duriron Company products. Bulletins No. 171, 513 and 514 sent on request.

THE DURIRON COMPANY, INC.
444 N. FINDLAY ST. DAYTON, OHIO

DURIRON

PAPER TRADE JOURNAL
ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

SIXTY FIRST YEAR

Published Every Thursday by the
LOCKWOOD TRADE JOURNAL CO., Inc.

GEO. S. MACDONALD, President: J. BANNINGA, Sec.-Treas.

Published at 34 No. Crystal St., East Stroudsburg, Pa.
Executive and Editorial Offices: 10 East 39th Street, New York
Chicago Office: 123 West Madison St.

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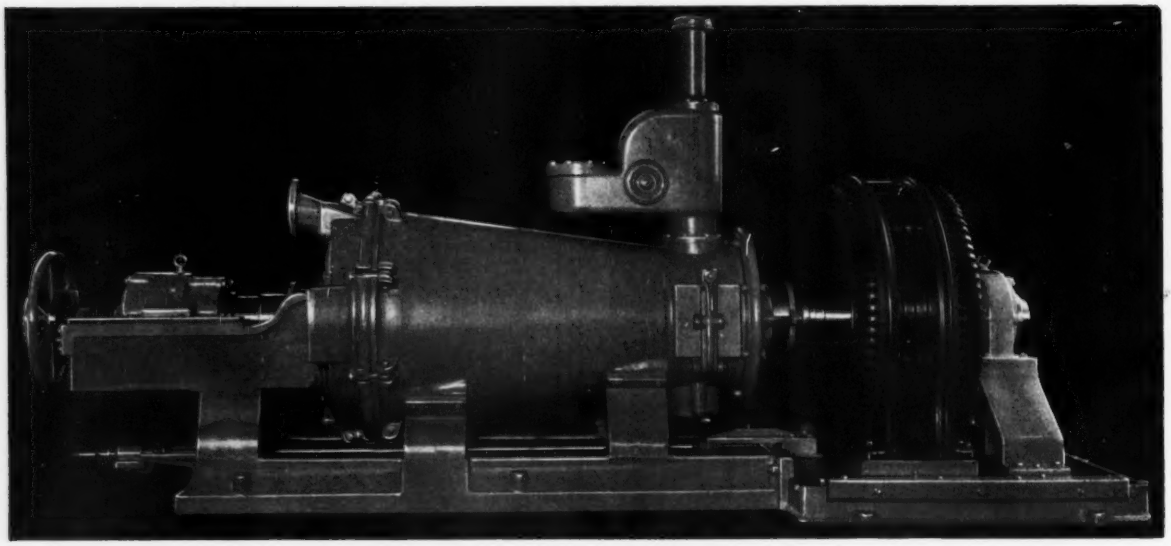

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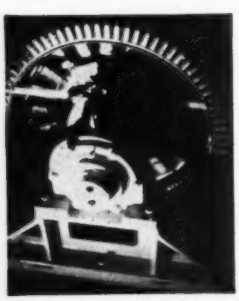

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